Vol. X TORONTO, MARCH, 1920 No. 3

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The Canadian Medical Association Journal

Contents

	Page
ORIGINAL ARTICLES	
Abstract of Presidential Address, Manitoba Medical Association. By G. D. Shortreed, B.A., M.D. C.M.	209
Presidential Address, Alberta Medical Association. By G. A. Anderson, M.D.	217
Plasmoma of the Naso-Pharynx. By J. T. Rogers, M.D.	223
Tuberculosis of the Urinary System. By J. E. Palmer, M.D.	225
Pyloric Stenosis of Infancy. By F. W. Stockton, M.D.	230
A Case of Chronic Middle Ear Suppurations, Cholesteatoma, and Mastoiditis, complicated by Labyrinthitis, Sinus Thrombosis and Meningitis. By J. K. Milne Dickie, M.D., F.R.C.S. (Edin.)	238
Treatment of Obstructive Dysmenorrhœa. By E. V. Frederick, M.B., M.R.C.S., Eng.	243
Demonstrations: Preparations Illustrating the Cause of the Tick Paralysis of British Columbia, Rocky Mountain Fever, Infective Jaundice and Yellow Fever. By John L. Todd, M.D., D.Sc.	245
Renal Calculus. By William Hutchinson, M.D., F.A.C.S.	250
Some of the Severer Forms of Chronic Headaches. By W. J. Chambers, (M.D.	256
Cases of Ectopic Pregnancy. By F. W. Gershaw, M.D.	261
Chronic Intussusception with Polypus. By L. G. Pinault, M.D.	265
A Case of Endothelioma of the Pleura with Multiple Metastases. By A. Vallee, M.D	268
CASE REPORTS	
Aphasia in a left-handed Individual consequent upon a right Cerebral Lesion. By Fraser Gurd, B.A., M.D., F.A.C.S.	270
Synopses of Case Reports from the Montreal General Hospital:—	
An unusual Case of Retro-Peritoneal Congenital Cyst probably arising from the Wolffian Body. By J. M. Elder, M.D.	272
Buried Chromic Catgut Sutures acting as Recurrent Abscesses Thirty Years after their Insertion. By J. M. Elder, M.D.	273
Scurvy. By F. G. Finley, M.D	274
Tabes Dorsalis with Gastric Manifestations. By A. H. Gordon, M.D.	275
EDITORIAL	
Influenza again Epidemic	277
Surgery and "The Unknown Quantity"	280
The Vancouver Meeting	282

(*For complete Index see page* 11)

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The Canadian
Medical Association Journal

Vol. X. TORONTO, MARCH, 1920 No. 3

ABSTRACT OF PRESIDENTIAL ADDRESS

By G. D. Shortreed, B.A., M.D., C.M.

Grandview, Manitoba

I WISH to thank the members of the Manitoba Medical Association for the very great honour they conferred upon me in electing me to the presidency of this provincial body of the profession. I appreciate it all the more, when I consider how many of the members are pre-eminently more able to carry the dignity attached to it, and have ampler opportunities of fulfilling its duties than I. The remoteness of the rural practitioner from the centres where medical thought and practice are large, the multiplicity of duties, other than professional, which fall to his lot as a citizen of such a community, serve to a certain extent to handicap him in carrying out the work of presiding over the interests of such an important association. However, possibly there may be compensations in the form of broadened sympathies, a viewpoint more or less detached from that of his confrères of the city, and a contact with other problems not so intimately connected with their work. It gives me much pleasure to welcome you here this afternoon, and I hope that in the varied programme, didactic and clinical, which is being presented to you, each one may find something helpful to instruct and inspire, so that on your return to your several duties, you may carry with you something helpful in solving the daily problems which present themselves, and that you may retain pleasant memories of the meeting of the Association in this eventful year.

I wish to call your attention to some of the advances that have been made in our province during the past year. For the

Delivered at the annual meeting of the Manitoba Medical Association, 1919

first time in the history of this province, I believe, our government has seen fit to seek advice of the Manitoba medical men through this association on matters of paramount importance to our own work and the public interest. About a year ago the executive council of Manitoba summoned a conference of the executive of the medical association and the executives of the Winnipeg medical and clinical societies in reference to matters relating to the opening of the psychopathic ward of the Winnipeg General Hospital, and in reference to the larger question of the care and treatment of those afflicted with mental disease. Our method of dealing with these unfortunates in the past had been largely a matter of mechanical restraint; during the recent present it has been one of custodial care; but of the future it must as far as possible be one of curative treatment. "Humanely care for the incurable, but cure the curable" must henceforth be our dictum. After a careful discussion of the whole matter, the conference made certain specific recommendations to the government, some of which were:—

1. The elimination of the barbarous method of arrest and commitment of the mentally diseased to jail.

2. The establishment of a psychopathic ward in the Winnipeg General Hospital, as a clearing house for all mentally affected, before any commitment to the asylum.

3. The appointment of a specially trained man to act as superintendent of lunacy for the province.

4. The segregation of the incurable for custodial care from the curable for curative treatment.

All the recommendations submitted received sympathetic recognition from the executive council, and have since been embodied during the last session of the legislature in the legislation "An Act Respecting the Care and Treatment of Mentally Diseased Persons." Dr. A. T. Mathers was appointed medical superintendent of the insane for the province. We hope that through the efforts and advice of the medical men of this province, a new era has been inaugurated, and that in future the unfortunate insane will be treated on more humane lines.

At the last meeting of our association, the chairman of the provincial Board of Health, Dr. Gordon Bell, outlined a programme of legislation for the prevention and cure of venereal disease. I am glad to state that this, too, has received recognition by the government, and that at the last session of the legislature the recommendations of the provincial Board of Health were enacted into a law known as "An Act for the Prevention of Venereal Disease", which,

I believe, is the most advanced legislation on this matter in Canada to-day. I understand that in this city free dispensaries have been established for the efficient management of these cases. At this point, the remark might be interjected that it seems anomalous to provide free treatment for those who have none to blame but themselves for their condition, while in other equally infectious diseases such as smallpox, diphtheria, enteric fever, etc., the individual who might be protected prophylactically from disease for which he is in no way responsible should not be protected through free dispensaries in the same way. During the war, through the compulsory use of serums and vaccines, the horrors of smallpox, tetanus, enteric and allied fevers were practically eliminated. If it was possible among the millions of soldiers to reduce infectious diseases almost to the vanishing point, should not a similar precaution be taken in civil life?

The epidemic of Spanish influenza revealed the urgent need of hospital facilities, especially in the rural portion of the province. This revelation led the government to pass an act respecting municipal hospitals, enabling municipalities to proceed with the construction of hospitals for their needs. This act is virtually the same as the one passed by the Alberta legislature, and is believed to be advanced legislation on this important matter. Undoubtedly, if adopted generally, it will meet a great need.

In regard to the matter of licensing of individuals to practice the healing art in their various schools, action concerning which was deferred pending the issuing of the report on medical education of Mr. Justice Hodgkins of the Province of Ontario, the committee on legislation may have something to give you.

The relation of the medical profession to the Manitoba Temperance Act is worthy of some consideration by this association. It is preposterous to saddle the burden of the morals of the province on our profession, as has been done, and the physicians, not only of Manitoba, but also of the provinces to the west of us, are beginning to voice their protest.

On behalf of the association I would like to express a few words of appreciation of our provincial Board of Health. In the past year they have been called upon to grapple with a tremendous problem in the epidemic of influenza through which we have just passed. That they have met the situation with credit to themselves and to the province no one hesitates to affirm. The constructive work they are seeking to accomplish through the agency of public health nurses in a campaign of education must meet with

the heartiest approval of all. The results, owing to social and economic conditions, may not be all that can be desired, nevertheless the dissemination of useful knowledge and the resulting enlightenment of the people can not help but be fruitful of results and of great assistance to the profession.

We are meeting this year under conditions quite different to those prevailing during the past four and a half years. Three features mark this past year as one of the most outstanding in the history of the world. The first was the defeat of the most efficiently organized military nation the world has known, and its abject suit for the ratification of peace. The second was the pandemic of Spanish influenza that swept over practically the whole globe. The third is the universal industrial unrest which now prevails in every nation that was engaged in the great war, and which may or may not be the result of demobilization, and the change from a war to a peace basis. In the carrying on of the first, in combatting the ravages of the second, our profession has creditably performed a noble part, and in the third, if we are true to the ideals of our greatest names, it is destined to still figure in the progress of the race.

It is with justifiable pride that we look back over the past four years at what has been accomplished, knowing that, through it all, we, as Manitoba physicians, have borne our part. The success of the gathering together of thousands upon thousands of men from all walks of life, depended in a large measure upon the effective selection of recruits, and then upon the careful attention to their health during the period of training, in the great bases, in the lines of communication, and on the actual battle front. Great questions in preventive medicine, hygiene and sanitation had to be solved, and it is to the credit of our profession that soldiers physically fit were placed in the field, and kept there with a minimum of disease. Then, too, while the giant intellects in other departments of science were devising death-dealing instruments, and poisonous gases of all kinds, the best genius of our profession was given over to the task of undoing this destructive work. The splendid service rendered by the hospitals, the physicians and surgeons, the nurses and orderlies, will remain one of the brightest chapters in the history of medical science.

In the glory of victory, not only over the enemy in the field but also over many of those more insidious foes of disease that have in the past wars taken a greater toll of life than the enemy, many of our professional brethren from Manitoba have shared, and this

afternoon, on behalf of this association, it is my great privilege to extend to all of our members who have returned the greetings and welcome of the medical men of this province. We are proud of your achievements and gladly welcome you back. We feel that you have gained a wide knowledge and a rich experience that will add to the effectiveness of the profession in Manitoba, But with this joy of welcome must come inevitable pain, for I recall that some who left will not return. Dr. Meek, a personal friend and fellow graduate of my own, a year ago last May, made the supreme sacrifice and gave his life while performing his work in the Doullens' hospital. We pay our respect to the memory of all such. May I also be permitted to say a word on behalf of those who remained at home. I cannot forget a resolution passed unanimously at the Canadian Medical Association two years ago in Montreal, which asked the government to appraise the medical resources of Canada and conscript all for whatever duty required. I know of no other body of men so asking to be conscripted. Many could not go, but these have performed good service at home. Their contribution was less; their glory is correspondingly less.

As in the war, so in the epidemic of influenza through which we have passed, the medical profession have acquitted themselves in a creditable and honourable manner. The arduous work and the faithful attention demanded of them in this crisis by overwhelmed communities was performed without stint or murmur. Many of our brethren forgot themselves as completely as those of the war service, and not a few gave their lives in their unflinching devotion to the performance of duty.

In these crises of war and pestilence our profession has borne a glorious part, so, too, I believe, in the great reconstruction work and present industrial crisis they will as ever be found in the van of progress for the race. For four and one-half years, 400,000 Canadian fellow-citizens, side by side with millions of others, have fought for democracy and liberty as opposed to autocracy and militarism. Men from every class and rank in life fought shoulder to shoulder. At home the labourer and clerk stood squarely behind his co-worker in the trenches determined to see autocracy and militarism with their attendant evils forever destroyed and democracy, freedom, and integrity permanently established.

Lloyd George, in one of his most recent addresses, uses these words: "It should be the divine duty of all to help in the building up of a new world, where labour shall have its just reward and indolence alone shall suffer want."

It is scarcely necessary for me to attempt to prove to you that the health of a nation depends largely on the economic condition of its citizens. General Gorgas said, in a recent address, that if he were given only one means by which to improve the health of the people on this continent, he would choose for that one, the doubling of the revenue of the wage-earner. The Children's Bureau of England, during its impressive series of studies in infant mortality, demonstrated that the great number of the labouring class have not enough to assure the wholesome upbringing of their children. By inquiry into the circumstances surrounding the deaths of infants in several cities, the Bureau arrived at the appalling conclusion, that between the income earned by the father and the child's chances of life there is a connection so close that it approaches a mathematical law. When the father earns $450 or less, annually, it appears that 167 children out of every 1,000 die within a twelvemonth. When, on the other hand, the father earns $1,250, or more, annually, only fifty-nine out of every 1,000 are sacrificed. Nor is its effect confined merely to the first year of life. It operates as well through the pre-natal period by reason of the care given the expectant mother. If we would save the baby, we must save and protect the baby's best friend—the mother.

The pre-school and school age, too, depend largely upon the same conditions for health. The fact that, on complete examination, approximately 50 per cent. of all children on entering school show signs of some physical defects, exclusive of those of the teeth, sufficiently important to require medical care, points to the absolute necessity of a careful medical supervision and this is not given, owing mainly to restricted economic conditions.

The same fact has been demonstrated among adults. For purposes of war, we have had to take an inventory of our physical assets, and the results have been amazing. From 50 per cent. to 75 per cent. of our volunteers, draftees and conscripts have been found physically unfit for military service, and these for the most part have been the victims of preventable and curable diseases and physical defects. In Canada, out of 361,695 men examined, 181,255 were found to be lower than Category A, or in other words a little over 50 per cent. of the men examined were defective in some way.

The great war was won by man power and, as never before, has demonstrated the value of it both in war and peace. Every nation has been expecting every man to do his duty, and now the war is over, every man will expect every nation to do its duty. He will expect a democracy that will make possible the development

of a sound mind in a sound body, both for himself and for his offspring, and will assure them of an equality of opportunity in every sphere of life. He must not only be allowed but he must also be encouraged and assisted, physically, mentally, morally, to realize his best self. And if we look keenly, we shall see now, not an old society crumbling, but a new society coming into being. It comes, indeed, with sore travail and strong crying, and where the old order resists to the death, with violence and bloodshed. The old order was political, military, individualistic in the extreme, and exploitative. It was based on force, selfishness, competition, and the law of the jungle. The new order will be humanitarian, altruistic, co-operative; it will be based on love, self-sacrifice, helpfulness and the Golden Rule.

What then shall the order of the new democracy be? It will be a democracy where every child will have the right to be well born, intelligently and adequately fed, comfortably clothed and sheltered, and with a right to a childhood. It will be a democracy where every child shall be completely educated to fit it for citizenship and the realization of its best self. It will be a democracy where every individual will be a self-determining personality with the free right to apply his labour power in any productive capacity, which is the right to live the fullest life. It will, I believe, be a democracy, where individuals, laid aside from this productive capacity through disease or accident, will be brought back as speedily as possible to a condition of productivity, through free hospital, nursing and medical service. It will be a democracy where all the knowledge of hygiene and sanitation, vaccination, etc., will be universally operative in the prevention of disease. It will be a democracy where nature's resources, bestowed by the beneficent hand of a kind Providence for humanity's use, shall not be the private property of anyone, through which he may exploit the labour of his fellow-men. It will be a democracy where, what is socially created, shall be socially owned for humanity's good. It will be a democracy where liberty, justice, and equality of opportunity shall hold sway, and the principles of co-operation, self-sacrifice, altruism, and brotherhood shall have free operation It will be a democracy where the rule of gold shall be superseded by the Golden Rule. It may be a democracy where there will be "Peace on earth and good-will to men".

What part shall our noble profession play in bringing this about? Someone has said that the statesman who wishes to understand how his fellow-citizens are thinking and feeling can do little better than to seek to discover what is going on in the working-class

home. Upon such knowledge depends the statesmanship of to-morrow. Our profession occupies pre-eminently a middle class position. Intellectually our minds are scientifically trained, psychologically we have the altruistic tendency. Our work is humanitarian, if not philanthropic, and brings us into intimate contact with all classes, rich and poor alike. We are, therefore, in a position to understand the psychology of apparently irreconcilable opposites. It will therefore be our privilege and our opportunity to play an important part in this great task of ushering in, as painlessly as possible, a new and better day. Sixty thousand of our fellow-citizens sleep on Flanders' Field. To Flanders, they have bequeathed their bodies; to their country, they have bequeathed their honour, glory and patriotism; to the world, justice, liberty and truth. Sixty thousand more carry the scars received in that colossal struggle, and are more or less disabled. Shall the sacrifices of these men be in vain, or have they given up their lives that all might find life—life in more abundant measure? Listen! Lieutenant-Colonel Dr. John McCrae, though dead, yet speaks to us:

"If ye break faith with us who die,
We shall not sleep, though poppies blow
On Flanders' Field."

THE *Scientific American*, in referring to the ravages of tuberculosis in the United States, says: "But it is not so well known that it particularly attacks the producers, chiefly men and women between the ages of sixteen and forty-five, people who are workers, active men and women in the home, the office and the shop. We know that it causes many deaths, but how many of us are aware that in the United States alone, every year, it causes the death of 150,000 people, and that at this very hour over a million people in this country are suffering from active tuberculosis? To those who reduce everything to a money value, it will be startling to learn that men who have made a special study of this matter, estimate the economic waste of this country through the prevalence of tuberculosis to be five hundred million dollars annually."

PRESIDENTIAL ADDRESS

By Dr. G. A. Anderson

Calgary, Alberta

THE fourteenth annual meeting of the Alberta Medical Association opens to-day under circumstances of peculiar interest and significance. The last five meetings of this organization have taken place under the cloud of war, such a war as the world had never before seen. The dawn of every morning through four long weary years and over, saw us anxiously scanning bulletins and papers for reports of events upon which hung the destiny of nations and the fate of civilization. The question of the sanctity of treaties, the integrity of small nations, and their right, side by side with larger and stronger neighbours to work out unmolested and in peace their own political and commercial destinies, an unquenchable faith in the final triumph of the great and beneficent principles of democracy, the deep-rooted conviction that the spirit of truth and righteousness which interweaves the very fabric of our Anglo-Saxon civilization must ultimately prevail, had created an incentive to patriotic impulse, endeavour and sacrifice of blood and treasure unparalleled in history. The great struggle is ended, moral and spiritual forces have triumphed over materialism, and as we foregather from all parts of the province at this our first annual meeting since the advent of peace, that which is uppermost in our minds in this connection is the splendid contribution made by the noble profession to which it is our privilege to belong.

Many of our members chose the more perilous paths among the ranks of combatants, and share the undying fame which has come to our arms; while others, the majority of those who responded to the call to the colours, threw in their lot with those whose aim was the prevention of disease and the alleviation of suffering and won no less renown, establishing new traditions and setting up for the profession a standard of unselfish devotion to the service of humanity such as will be difficult to emulate, but I trust, in civil life, we will make it our ambition to attain.

Delivered before the Alberta Medical Association, annual meeting, Calgary, September 1st to 3rd, 1919

To the gentlemen to whom I have been referring, on behalf of the Alberta Medical Association, I beg to express our deep sense of pride in your achievements and appreciation of your self-sacrifice and extend a most cordial and hearty welcome back to the place in the profession which you temporarily vacated, and trust that in the days to come you may find that place even larger and more satisfying than in the days before the war.

With the closing months of hostilities, however, there appeared another spectre more menacing and leaving a trail more ghastly even than that of armed conflict. I refer to the pandemic of so-called Spanish influenza.

Not within a century has medical science received a more staggering body blow than was inflicted by this elusive but fatal scourge. With no premonitory manifestations nor warnings of approach, like a thief in the night, or like the wind, indicating not whence it cometh nor whither it goeth, it swept over the world. No respecter of persons it visited the rich and the poor, the palace and the hovel, the apparently strong and robust as well as the defenceless mother and infant, exacting an incredible toll of human lives and leaving in its train thousands weakened and incapacitated by its ravages. Will the pages of history proclaim to posterity that the students and practitioners of the science of medicine in these times were, in a great emergency, found wanting in knowledge and resource, or that there existed a state of national unpreparedness in the way of public health measures due to the inertness of the medical profession whose responsibility it is to educate the people on this and kindred matters? In this and other lands untold deaths occurred through lack of adequate provision for proper care, particularly in isolated and congested districts. Yet there is a brighter side to the picture, for in it one sees a profession whose members in the actual conflict with disease, maintained its highest and best traditions. Unhesitatingly and unreservedly they gave of their strength, endangering their lives, and some even making the supreme sacrifice. And here, on behalf of the other members of this association, I would like to pay a special tribute to the heroism of the men practicing in country places. It is beyond all praise and worthy of permanent record. Thus, the year through which as an association we have just passed, has been marked by events of particular significance to the medical profession, as well as of momentous import to the world at large. We are ever in the midst of transition. The mills of the gods grind slowly, but surely and are ever grinding. Except to the close observer, the process may

go on unrecognized. The great war was not the chance result of the assassination of an Austrian prince, but the finished grist and logical product of many years of systematic and scientific milling. Economically and politically we are at the climax of a period, the parting of the ways. It does not follow, however, that the progress of medical science is at a corresponding stage. Outstanding epochs in its growth have not been coincident with great historic events. The recent upheaval has not been characterized by brilliant discoveries in the realm of medical science. The effect, rather, has been the stimulation of investigation and research, the testing of that which has been untried, the development of all that has proved of value. No new principles have been evolved but those which have been handed down to us by the patient and persistent investigators of the nineteenth and early part of the twentieth centuries have been applied and elaborated with results which a comparatively short time ago would have been regarded as little short of miraculous. Virchow, Lister, Pasteur, Koch, and many others of great creative genius had not lived in vain, if only for what their discoveries were the means of accomplishing during the war in preventing disease, alleviating suffering, and repairing the broken and shattered. Henry Christian, in "The Oxford Medicine", states that "medicine, like other sciences, advances by a periodic progression". "The middle of the nineteenth century," he terms as "a period of the dominance of a structural pathology", the last quarter of the same century as a "bacteriological or etiological period", and the present, beginning in the early days of the twentieth century, as "a period of physiological (including biochemical) or functional dominance". The predominating study in the present period is that of function. In this direction advances are being made, the tendency being to concentrate along these lines, and methods of study are applied which are best adapted to its development. Animal experimentation has naturally played a large part in the study of advanced physiology for which a great deal of apparatus has been devised and the same principles have been utilized and adapted in the study of the functions of organs and tissues in the human body. Organic chemistry has also been developed and directed toward the study of the chemical constitution of living matter and biochemistry has opened up a very attractive and fruitful field of research. The same may be said of physical chemistry in its application to the study of body fluids, and methods of determining the chemistry of the blood have been elaborated.

The bacteriologist, the physiologist, the biochemist and the

physical chemist are most prominent in the field of medical science during this period, and have already contributed immeasurably to the means and methods available for the study of the functions of various tissues and organs.

However, in this concentration of thought and effort in the study of function there lies a danger of neglecting to attach sufficient importance to other knowledge such as that pertaining to structure or pathological anatomy. The opportunity for an autopsy is not as much sought after and post-mortem examinations of pathological specimens in the gross, as well as microscopic for structural changes, are not as much the routine procedure as they were during the last period of the nineteenth century. The consequence is that errors in interpretation of observations are liable to result, and the methods of arriving at a correct diagnosis lack their proper balance.

The armamentarium of a well equipped medical man should include a well-balanced knowledge of the fundamental or basal facts of medicine, viz.: anatomy, physiology, biochemistry, pathology, bacteriology and pharmacology, and the laboratory methods required for their elucidation, and as Christian finally points out, "In the practice of modern medicine one should maintain a proper balance between all these methods and those of history-taking and simple observation. In the immediate past there has been a distinct tendency to overvalue the laboratory and to undervalue the means that made of our predecessors very sound practitioners of the medicine of their day." Writing in the same strain, James Mackenzie contends that laboratory workers now get a limited view of disease and their opportunities permit them to see but a very small part of the field of medicine. The phenomena created by the early stage of disease are not revealed by mechanical means or laboratory methods, nor can they be recognized in the laboratory or hospital ward.

Here one might dwell upon the value of "the early detection of disease, how at that stage it is more amenable to treatment and how vastly more important from the patient's point of view to observe the early stages of disease than to recognize its peculiarities when it has produced physical signs or when it is found on the post-mortem table."

In this connection it might be opportune to consider James Mackenzie's conception of the general practitioner and his opportunities. He says, "It is manifest that if symptoms are to be properly valued it can be done only by those who have the opportunity to watch the individual patients through long periods of

time, who see the disease at the earliest stage, or even before its inception, and who can observe its progress through all the vicissitudes of life. Manifestly that cannot be done by a worker in a laboratory or in a hospital ward. On the other hand, consider the opportunities of the general practitioner. He is the only individual in the medical community who has a broad outlook on medicine, whose life work gives him the opportunity of seeing all parts of medical knowledge in its true perspective. He sees the conditions which predispose to disease, he sees its inception and the course it pursues, when it is amenable to medical treatment or passing to the time when it calls for surgical interference." In this age of the glorified specialist and a multitude of mechanical and laboratory aids to diagnosis, such a statement from one so distinguished is, to say the least, encouraging and inspiring. It means that the general practitioner, the family doctor, whether in town or hamlet or isolated district, is given the opportunity and the responsibility of laying the foundations of medical knowledge. It means also that he, just as much as the laboratory worker, holds the key to the great unexplored and undiscovered in the realm of medical science. "He who is in medicine both to advance knowledge and alleviate suffering in the individual remains, as always, the ideal physician."

In this new country with its scattered population, its magnificent distances and uncertain means of transportation, there must be of necessity for some time to come, a large number of our profession doing the hard monotonous pioneer work. To such gentlemen present, let me say that you are building greater than you know. Yours is the privilege of having a share in laying the foundation of a mighty nation in this last great West, and of making valuable and permanent contributions to the noblest and most beneficent of all sciences. In this direction there lies before the Alberta Medical Association a field of unlimited possibilities. In the plan of reorganization which is to be effected at this meeting, the highest standard of efficiency, with a view to national service, should be the key-note. Nothing short of that can justify its existence. As a medical organization, it should stand for and maintain the highest and best traditions of the profession. Its ethics should be based upon the Æsculapian code. Hippocratic principles should dominate every line of policy adopted.

At this meeting there will come up for discussion some questions which affect the profession apart from the scientific and academic; questions in which are involved the prestige and honour of the profession in the community. During the past year our good name

has been before the tribunal of public opinion in connection with the illegitimate prescribing of alcoholic preparations. In our consideration of this and other matters, where the welfare of the people is concerned, let us be actuated by those principles which stand for all that is best in our profession. Such principles must have place over all other interests, personal or otherwise. Another matter to which I should allude, and one which has been forced upon the attention of the profession, is the lessened purchasing value of the remuneration received for services rendered. Since the last schedule of fees authorized by the Medical Council of Alberta was put into operation, this value has diminished by almost fifty per cent., while the standard of medical education, the time required and outlay demanded in obtaining it, and the cost of keeping pace with the advancement of medical science, have increased almost to an equal extent. The high standard of efficiency and of ethics for which this association stands is an additional justification for a careful and judicious consideration of this whole question.

In arranging the programme for this meeting we have made a departure in the direction of the practical. The selection of the precincts of a hospital as a place of meeting had in view a move toward clinical work as a part of our programme in the future. Our contention is that the annual meeting should be made of the greatest possible permanent benefit to the members of the association so that they cannot afford to be absent from them, and this end can be best attained by having a goodly portion of the programmes to consist of clinical and laboratory demonstrations. If deemed necessary or advisable, the length of time devoted to the meetings might be extended, and a clinical week might be arranged such as is being contemplated in some other parts of Canada.

In conclusion, gentlemen, let us remember that the greatness of a country is not to be measured by its wealth, but by its soul, and the greatness of our profession is measured by the spirit of its service.

Hippocrates is said to have been not only a great practitioner of medicine and surgery, but one of the most high-minded, modest, kindly, well-balanced, and intellectually fearless men of the world. Such men have stood out in our profession all down the ages. It has been said, "Man is but the sum of his ancestors." Ours is a great and noble heritage. It will be a woeful moment when we forget the past or if, in this period of transition and readjustment, we fail to measure up to it.

PLASMOMA OF THE NASO-PHARYNX

By J. T. Rogers

Associate in Oto-Laryngology, Royal Victoria Hospital

MR. N. S., forty-two years old, complained of severe nose bleed of one year's duration. Personal and family history negative. Present illness began one year ago when he first noticed slight bleeding from the left nostril and back of the nose. Bleeding at this time was slight and caused no inconvenience apart from a momentary cessation from work. This continued for six months, when severe hæmorrhages from the nose and nasopharynx began incapacitating him from any further work. About this time there also occurred complete nasal obstruction. Hæmorrhages came on spontaneously and would last anywhere from one to two days, during which he estimated he lost from two to three cupsful of blood, and became very weak. At no time was there any pain. During the past year he sought advice from several different doctors who either prescribed a nasal ointment or cauterized the nose.

When seen by me for the first time in the oto-laryngological department of the Royal Victoria Hospital, I was struck by his marked anæmia and the extreme pallor of the mucous membranes, a condition which I have never seen associated with a simple epistaxis. Nasal obstruction was pronounced. Turbinates pale and swollen, septum straight. A careful intra-nasal examination failed to reveal any bleeding areas or pathological growth. Posterior rhinoscopy revealed an uneven granular-looking hæmorrhagic mass, completely filling the naso-pharynx and seeming to spring from its vault. The surface of the tumour showed areas of fresh and old bleeding. Digital palpation through the mouth suggested a moveable and rather firm growth, any manipulation of which resulted in a persistent but not alarming hæmorrhage. At this time I considered the case one of naso-pharyngeal fibroma, and had him admitted to the ward for observation and removal of growth.

An examination of blood made then showed: red blood cells, 4,336,000; white blood cells, 8,800; hæmoglobin, 40 per cent. A general examination showed various systems normal. Whilst in

the ward, hæmorrhage from the naso-pharynx was continuous and severe, the nurse reporting at one time as much as eight ounces in one hour. Owing to his very poor condition and the danger of severe hæmorrhage occurring on any operative procedure, I asked Dr. Garrow to see the case with me, with a view to ligating the external carotids, which he did under local anæsthesia, February 1st, 1918. The operation was attended by a great deal of shock from which he recovered rather slowly, but was a complete success in arresting any further hæmorrhage. Under general treatment his condition now rapidly improved, and six weeks later it was decided to remove the growth.

Under inter-tracheal anæsthesia, I pulled the soft palate well forward by means of a soft rubber catheter, passed through the nose and out the mouth and tied. Then with an ordinary Krause nasal snare, fitted with heavy tonsil wire, passed through the nose, I encircled the growth, guiding the loop over it with the forefinger of the left hand in the naso-pharynx, and pulling the wire slowly home. The growth was removed whole, and was followed only by slight oozing. The patient was returned to the ward in good condition, and, without any further local treatment, made an uninterrupted recovery. He left hospital three days after operation, and a blood count made ten days later showed marked improvement—red blood cells, 4,200,000; white blood cells, 8,300; hæmoglobin, 63 per cent.

Subsequent examination of the naso-pharynx showed the tumour took origin from the inferior border of the cushion of the eustachian tube and the neighbouring surface of the soft palate. Doctor Oertel, who was kind enough to examine the growth, reported: "Section shows the growth consists essentially of plasma-like cells. These are large and contain small round eccentric nuclei. There is very little ground substance, and the surface is covered with transitional epithelium. Diagnosis, plasmoma."

The interest in this case centres around the very unusual character of the growth. A search through the literature and text-books has failed to discover a similar case, while the pathological files of the Royal Victoria Hospital during the past five years record only two cases of plasmoma, one the subject of this paper, and another which arose from the medulla of the bone. According to Delafield and Prudden, plasmoma or plasmocytoma is "closely related to the lymphoblastoma, but differs in being usually benign. In the bones, however, it may behave as a malignant growth".

TUBERCULOSIS OF THE URINARY SYSTEM

By J. E. Palmer, M.D.

Calgary, Alberta

TRUE to its mode of attack in other parts of the body, tuberculosis of the urinary system is insidious in its onset. It is very probable that primary tuberculosis of any part of the urinary system does not occur. It may be considered as always secondary to a focus in some other part of the body.

Regarding the method of infection much experimental work has been done, many clinical observations reported and several theories advanced. Whether the infection may begin in the bladder and ascend to the kidney, or whether the primary lesion may occur in the kidney and the infection be carried down by the flow of urine, has been for a long time a mooted point.

Experimentally it has been shown that if a ureter be ligated and then tubercle bacilli be injected above the obstruction, tuberculosis will be produced in the kidney. On the other hand, experimenters by introducing tubercle bacilli into the bladder were unable to produce an ascending tuberculosis.

Brongersma has shown that during a period of twelve years, vesical tuberculosis may remain limited to the bladder without ascending to the kidney.

Albarran and others have demonstrated that if tubercle bacilli be injected hypodermically and a ureter be ligated, tuberculosis developed in the kidney whose ureter had been tied.

Clinically, tuberculosis of the kidney has been found without the bladder being infected. Brongersma maintained that infection was carried by the lymphatics rather than by the blood stream. In sixty-two out of seventy-one cases of renal tuberculosis, he found that there were symptoms of pulmonary or pleural infection on the same side as the affected kidney. In children, bilateral renal tuberculosis is more common than in adults. This, he explained, was due to the occurrence of bilateral tuberculous thoracic glands and to the large size of the lymph vessels.

Walker states that a history of bygone pleurisy is frequently

obtained, but the pleurisy was not infrequently found on the side opposite to the renal tuberculosis.

Tuberculous cystitis may be secondary to genital tuberculosis. In the absence of renal tuberculosis the cystoscopist finds the orifices of the ureters healthy.

Walker says: "Since I have relied upon the ureteral catheter in every case for decision on this point, I have not met with a single case of primary tuberculosis of the bladder."

Adami says that the preponderance of evidence at the present time favours the view that in most cases the infection is a descending one, the bacilli passing through the kidney and setting up disease elsewhere, for example, in the ureters and the bladder.

Renal tuberculosis occurs chiefly between the ages of twenty and forty. The right kidney is more often diseased than the left and women are more commonly affected than men.

Balfour states that at operation, 80 per cent. of the cases are unilateral, but that at autopsy, 75 per cent. are bilateral. This can easily be explained by the many inoperable cases that come to autopsy.

Adami says that at autopsy in cases of bilateral renal tuberculosis the disease is much more advanced in one kidney than in the other.

Israel has shown that the infection is limited to one kidney first and later on the other becomes infected, and that the second infection is not from the first, but from an extra renal primary focus.

Experimentally, injury to a kidney will determine the development of tuberculosis in that organ. Walker says that he does not know of any instance in which a kidney that has been explored by nephrotomy and found healthy, has afterwards developed tuberculosis.

Like tuberculosis, foci in other parts of the body, tuberculosis of the kidney, while usually in the form of a pure culture, may become contaminated with the B. coli, the staphylococci or the streptococci.

Miliary tuberculosis of the kidney may be found as part of an acute general miliary tuberculosis. This is of no surgical interest and will not be discussed here.

The most common type met with is known as the ulcero-cavernous form. According to the stages of development of this process, many varieties occur at operation or at autopsy. This destructive process may begin in either the upper or lower pole

of the kidney, and one pole may show marked evidence of destruction while the other is normal. The apex of a pyramid as shown by an area of intense congestion and beginning ulceration, is the vulnerable point.

The process extends along the lymphatics towards the base until the whole pyramid is scooped out. There may be several foci in the kidney or local metastasis may occur. Some of these may become united or they may be separated by fibrous tissue and the thick walls of the cavities. In the cortex opposite the base of the diseased pyramid discrete tubercles are usually seen. They may also appear in the columns of Bertini.

By fibrous thickenings and contraction of the calyx or of a large branch of the pelvis or of the pelvo-ureteral junction, nature is often partially successful in walling off a focus. According to the position of the obstruction, a hydronephrosis, partial or complete, will result. In such cases the fatty tissue about the pelvis becomes increased, sclerosed and adherent. If the only focus or all the foci be so shut off, it is possible to have an advanced disease in the kidney, while the bladder shows no evidence of disease.

Microscopically, the wall of the cavity shows an inner layer of caseous material, a middle layer of tubercle and giant cells, and an outer layer of renal tissue infiltrated with round cells.

The caseous form is much less common. In this type the kidney substance is replaced by a caseous material of the consistence of putty.

By the tubercle bacilli that are carried in the urine, the ureter may become infected. Superficial ulcers may occur on the mucous membrane anywhere along its course or the duct may become thick, hard and rigid, the lumen is small and may become blocked by tuberculous matter. The second kidney may very rarely become diseased by an ascending infection from the tuberculous bladder. Usually though the blood stream is responsible for the spread of the infection.

The symptoms of renal tuberculosis are rather deceptive. McKenzie, of Montreal, in a review of cases admitted to the Royal Victoria Hospital, states that the most prominent symptom was cystitis, that macroscopical hæmaturia was present in 15 per cent., and in only 12 per cent. was pain over the kidney mentioned as a primary symptom, and that through the whole course of the disease, there may be no symptoms except those confined to the bladder. These symptoms come on insidiously with gradually increasing frequency of micturition. At first this frequency is only noticed dur-

ing the day, then becomes troublesome at night and eventually nocturnal incontinence may develop. The act of micturition is usually followed by pain at the neck of the bladder and along the urethra. At the end of the act, there may be passed a few drops of blood. An early urinary change is polyuria. Ureteral catheterization may show that this is confined to the diseased side. The urine is pale and contains an evenly distributed but small amount of pus, and possibly a number of small flakes; it is acid and may contain a small amount of albumen.

Hæmaturia may be an early symptom. It is probably due to congestion and may precede any other symptom by years. It may also occur during the course of the disease, usually following strain or injury.

The kidney pain is usually described as aching in character. The passage of clots or debris may cause severe pain or colic. Usually there is loss of weight and lassitude. Fever and chills suggest a mixed infection, and are conspicuous by their absence.

Abdominal examination may reveal a large kidney which is frequently tender. This may be compensatory, the other kidney being destroyed, or it may be hydronephrotic. In patients that have thin abdominal walls, the thickened ureter may be felt. Or when a rectal examination is made, it may be palpated above the prostate, or per vagina in the female.

As the finding of tubercle bacilli in the sputum is important as evidence of pulmonary tuberculosis, so in renal tuberculosis the tubercle bacilli should be found in the urine, even if repeated examinations be necessary.

In examining the bladder by means of the cystoscope, characteristic scenes appear. There may be yellowish discrete tubercles on an inflamed part of the mucous membrane. There may be ulceration of varying extent and depth. These ulcers are irregular in outline. The edges may be undermined and jagged. They may show healing on one side and extension on the other.

If the case be chronic with thickening and consequent shortening of the ureter, the ureteric orifice will be dragged from its normal position and present a gaping mouth. An inflamed orifice with ulceration about the lips or below them will indicate a recent infection of the bladder from the kidney of that side.

Grouping of tubercles on the trigone or the base of the bladder suggest an infection arising from the genital system. Absence of changes at the other ureteric orifice does not assure that the second kidney is free from infection. After it has been determined that

the patient has a second kidney and that the urine from that kidney is of good quality and free of pus and from tubercle bacilli, the diseased kidney should be removed. The renal function is determined either by the phthalein or indigo-carmine test. The kidney is removed through the lumbar incision and care must be taken lest the tuberculous matter come in contact with the wound and there set up a fresh tuberculous infection. The ureter is resected at the brim of the pelvis. The cut should be cauterized and treated with as much caution as is given in the case of an appendectomy stump. If so treated, a tuberculous fistula will seldom result.

Following the operation, general treatment as in any case of tuberculosis should be employed, together with a weekly injection of small but gradually increasing doses of tuberculin. Under such treatment, the bladder symptoms often abate in a remarkable short time.

Bladder irrigations and instillations or fulgurating and curetting of the ulcer may give temporary relief, but secondary infection is almost certain to follow, and the patient's second state is worse than the first.

The use of urinary antiseptics except in cases of mixed infection is worthless.

As the onset is insidious, the duration of the disease is difficult to determine. After the symptoms become marked, the disease gradually advances till death ensues four to seven or even ten years later.

Thomson Walker says it is generally accepted that spontaneous cure of tuberculosis of the kidney can only occur in the most exceptional cases, and that the disease progresses till the organ is completely destroyed. If both kidneys are affected, death occurs from anuria, or, if a mixed infection is present, from exhaustion.

To sum up: Renal tuberculosis is insidious in its onset. It is secondary to a focus elsewhere. The infection is hæmatogenous in its origin. It is carried upwards by means of the lymphatics, and downwards by the urine. The ureter and bladder become diseased by a descending infection. Tubercle bacilli should be found in the urine. The presence and function of the second kidney must be determined. The treatment is nephrectomy followed by injections of tuberculin, together with general antituberculous treatment. Recovery of a tuberculous lesion in a kidney is very doubtful. The disease almost invariably progresses till the whole organ is destroyed.

PYLORIC STENOSIS OF INFANCY

By Dr. F. W. Stockton

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THE cause of pyloric stenosis of infancy is wrapped in mystery. All we know is that a baby is occasionally born otherwise absolutely normal in which the pylorus, instead of being a muscular organ capable of expansion and contraction like the anus, is composed of a hard, cartilaginous substance incapable of expanding or contracting, which bulges out so as to form a palpable tumour and extends inwards in such a manner as to more or less encroach upon the lumen of the pylorus and obstruct the passage onward of food from the stomach. The *microscope* reveals the fact that this enlargement is due to a hypertrophy of the circular muscles.

It is practically certain that it is congenital, for how could any person imagine that such a cartilaginous mass could form in the new-born babe in the short space which elapses between the time the child is born and the onset of symptoms? Moreover, this condition has been found in the fœtus.

The most generally accepted view is that it is *some* sort of an anomaly of development. Perhaps when the embryologists get busy they may offer an explanation. In the meantime we are obliged to regard the cause of it as a mystery.

Symptoms. The symptoms of pyloric stenosis of infancy are, named in order of their importance, as follows: 1. History. 2. Abnormal retention of food. 3. Visible peristalsis. 4. Palpation of the tumour. 5. Loss of weight or failure to gain. 6. Constipation.

History. When a baby at the breast who is not being overfed or fed too frequently and when the breast milk is not too rich begins rather suddenly an unaccountable and persistent vomiting somewhere between two and six weeks after birth, especially if the food shoots out instead of merely regurgitating, and if the child was previously quite normal, and seems hungry, and shows

Read before the Alberta Medical Society, September, 1919.

no other sign of indigestion, suspicions of stenosis should at once be aroused. Instead of that, what is very frequently done is to advise weaning, which of course turns a serious matter into a calamity.

I have said that the onset of vomiting was between two and six weeks after birth, because that is by far the most common period. It has been known to begin as early as a week and to be delayed as late as three months or even longer. The function of the pylorus is that of a gateway, to be opened and shut at the required times. In the case of pyloric stenosis the gateway can only be partially opened. The more limited the power of the gateway to open the more acute will be the symptoms and the sooner their onset. If, on the other hand the functions of the gateway are but slightly impaired the symptoms will be mild and probably later in setting in. There is, therefore, all degrees of cases, from mild to acute. The stomach, however, when it finds an obstruction, exactly like the heart under similar circumstances, intensifies its muscular action in order to force the food through the small opening. This causes two things: first an œdema of the vessels around the pylorus, and, secondly, a spasm. These, of course, speedily make the symptoms more acute. A peculiar thing about the vomiting that the mother will often report, is that the child vomits more food than it takes in. The explanation of course is that the baby vomits the food taken in, together with what was retained from the last meal. The vast majority of cases of pyloric stenosis occur in breast fed babies for the simple reason that the vast majority of babies are nursed for at least a few weeks. I will say from observation that a diagnosis of pyloric stenosis is made in artificially fed babies far more often when it does not exist. In the breast babies I think the reverse is true, that it is far more often overlooked; otherwise, the advice to wean would surely never be given.

Abnormal Retention of Food in the Stomach. This is a most important sign. If a baby with a typical history of vomiting as described above, when given a feeding of breast milk or whey retains the whole or most of it for two and a half to three hours after feeding, not occasionally, but as often as the experiment is tried, we then have strong confirmation of our suspicions. It is not sufficient to simply wash the stomach. The contents of the stomach must be sucked up. Holt has devised a special apparatus for this, but a catheter with a wide mouthed bottle corked air-tight with two glass tubes is quite satisfactory. Of course the same

information can be got with the *x*-ray and bismuth meal. The plate at two and a half to three hours will show most of the meal still in the stomach. The *x*-ray shows nothing more than the sucking apparatus will show and in the case of acutely ill infants the mauling necessary to get a satisfactory plate does not do them any good. Holt reports at least one instance where, when the *x*-ray performance was completed the baby was dead, and, as we shall show later, in this class of cases all unnecessary delay is inadvisable and certainly the *x*-ray is not necessary to make a certain diagnosis. Strauss of Chicago reports peculiar, snaky, worm-like movements of the pylorus seen with the fluoroscope in cases of stenosis. In a series of one hundred and one cases he claims to have proved this to be entirely diagnostic. He also uses the *x*-ray as a means of deciding which cases should be treated medically and which surgically. This author states that he has standardized it so that if 50 per cent. of the bismuth milk meal remains in the stomach in four hours, the case demands operation at once; but that if 70 per cent. has passed through in four hours, the case can be treated medically.

Visible Peristalsis. This is a most interesting symptom and when present is practically diagnostic. To see the large round balls of muscle passing in succession slowly from left to right across the stomach is a curious spectacle. Without this sign a diagnosis of pyloric stenosis is not to be thought of. The child should be given a feeding, and then stripped to the skin. If the waves are not striking and distinctive they should not be considered, because other conditions will occasionally cause partial, weakling waves, but the things which produce typical waves outside of stenosis are so exceedingly rare that they can practically be ignored. The waves generally continue till the child vomits.

Palpation of the Tumour. One might naturally ask, why not place this symptom first on the list, for if you feel a tumour certainly a tumour must be there. But all men are not equal in their ability to palpate the tumour. Moreover, it is conceivable that, the pylorus and stomach being moveable, the tumour might be in some location which it would be difficult or impossible to palpate. However, I do not remember a single case at the Babies' Hospital in which the tumour could not be easily palpated once a man became accustomed to how it feels. Dr. Kerley states in all his cases a tumour could be felt. In the seven cases that I have seen here, the tumour was easily palpated. It is a small hard oblong body that feels under the infant's thin abdominal wall like a peanut or

an olive or a pecan nut would, under a cloth. It is nearly always to be felt at the right of the median line between the umbilicus and the liver, generally nearest to the former.

The loss of weight, constipation and scanty urine are of course due to the vomiting, and, of course, are in direct proportion to the acuteness of that symptom.

The general course of the disease is modified by many things, especially good or bad treatment. In the neurospathic child, spasm is quickly added and the symptoms become rapidly worse. Some writers in the past have endeavoured to confuse pylorospasm with pyloric stenosis, but there is no more reason for this than to confuse spasm of the bronchial tubes with atresia. Spasm is almost always an accompaniment of stenosis, but whether it occurs as an independent disease, I do not know. Holt, in a recent review of the subject, states that "*a definite persistent pyloric spasm without hypertrophy has yet to be proved*".

Diagnosis. No disease in the realm of medicine, that has such clear-cut signs and symptoms, is as often wrongly diagnosed or overlooked. No disease has such a positive age limit. The vomiting is like no other kind of vomiting except cerebral, which, of course, can be absolutely excluded. Abnormal retention may occur in other diseases but not so persistently. Visible peristalsis is seen in this disease as it is seen in nothing else except in such a rare condition as, for instance, a constriction band. The feeling of the characteristic tumour settles the diagnosis. These tumours all feel alike. They never vary, except a little in size. This one sign alone requires previous experience.

A diagnosis must be certainly made before an operation is to be thought of. If an operation were undertaken where the symptoms had been misconstrued, nothing but a disaster could follow, for in addition to not relieving the symptoms, there would be added the shock of an operation, which is a very serious matter in these little subjects. In adults, an operation is frequently beneficial even when a supposed cause requiring the operation does not exist, for there is the psychical effect and an enforced rest from the strenuous activities of business or pleasure; but no such result ever obtains in the infant, and if an operation does no good, its effect is wholly bad.

Treatment. After we have made the diagnosis, we have to decide whether we will treat medically or surgically. It must be remembered that by the time a diagnosis is usually made, these cases have become very bad surgical risks. They have generally

lost two or three pounds and are still losing very rapidly. In the past, there have been many physicians and pediatricians who have opposed all surgical treatment and advocated relying entirely upon medical treatment in all cases. This is not at all surprising when they had in view such a formidable operation (for this kind of patient) as gastro-enterostomy.

According to statistics compiled by Holt, the mortality of all cases treated by gastro-enterostomy was approximately 50 per cent. and also statistics of mortality of *all* cases treated medically were about 50 per cent. So that it was a case of fifty-fifty. The high mortality, either way, had been giving him much concern, and while studying out some way to reduce it, he read a report in 1914 by a man by the name of Rammstedt, of Munster, to the effect that he had operated on a case of pyloric stenosis by merely incising the muscular coat down to, but not through, the mucous membrane, and that the patient survived and that the symptoms almost immediately disappeared. So far as is known, perhaps on account of the war, Rammstedt has never repeated the operation, but after considering the subject and conferring with Dr. Downs, surgeon to the Babies' Hospital, Holt decided to give the operation a try-out. The result was most satisfactory, as the mortality was immediately reduced to about 23 per cent. It is but fair to state also that there was no picking of cases; that all cases, even although they were in an extreme condition of weakness, were operated on, and with Down's characteristic truthfulness, placed in his statistics. On such cases no one would ever have dreamed of attempting a gastro-enterostomy. For the first nineteen cases, Downs, fearing that simply an incision might not fulfil all the requirements, made a small incision into the stomach, and passed a number twenty French sound through the pylorus to dilate it, but subsequently finding the cases did equally well without this precaution, it was thereafter omitted.

In 1915 he had a series of thirty-seven cases, he now has several hundred.

Like all new methods, at first this operation had many critics, both by physicians and surgeons, but a visit to the hospital in 1917 proved to me that the operation had grown greatly in popularity. Far fewer surgeons were doing gastro-enterostomy. Far more physicians were bringing the cases in for surgical treatment and the mortality was being greatly reduced chiefly because they were bringing the cases in earlier. Many prominent physicians and surgeons throughout the United States are now writing enthusiastic

articles about it. Some are trying to modify it, but up to the present no operation has been devised which so well meets all the requirements. The advantages of this operation are summed up by Downs (its chief exponent) as follows:

"It has many advantages over gastro-enterostomy. The time required to perform it is so much less. The reaction is more prompt. Feeding is begun earlier and can be pushed more rapidly. Post-operative vomiting and other complications seldom occur. The operation is simple and requires much less surgical skill than gastro-enterostomy, and most important of all, the obstruction is removed and the normal continuity of the alimentary tract is preserved. The criticisms against the method are that it leaves an uncovered wound, that the abdomen is protected from contamination only by a thin *layer of mucous* membrane, and that as the scar contracts, the obstruction might reform. I believe the excellent results obtained by other surgeons using this method, together with those here recorded prove these criticisms to be largely theoretical. The danger of opening the mucous membrane is a real one, but with care should be avoided."

Holt, in an article in the *Journal of the American Medical Association* writes as follows:

"All the surgical dangers, shock, leakage, sepsis, hœmorrhage, are greatly lessened by the substitution of a ten to fifteen minute operation as proposed by Rammstedt for a gastro-enterostomy, which takes three or four times as long. The complications and sequelæ are less frequent and less severe, the reactionary temperature is not so high, and the vomiting and diarrhœa so often seen after gastro-enterostomy are seldom seen after the Rammstedt operation. The food can be given earlier and increased more rapidly. Convalescence is far more rapid. Gain in weight begins by the end of two tweeks and thereafter proceeds as in normal infants.".

It must not be supposed that the operation alone, however, skilfully performed, can assure recovery. Ignorance of post-operative measures will almost assuredly nullify the result of well-directed surgery. We again quote from Holt:—

"The success of the operation is dependent in no small degree on the after-treatment. For a number of days after the operation, the lives of these little patients often hang by a slender thread, and errors in judgment, especially with regard to feeding, often have the most disastrous consequences. It is, then, of the highest

importance not only that the operation be done by a skilled surgeon, but also that the infant after the wound is closed be under the care of one equally skilled in the post-operative management."

What cases shall we select for operation and what for medical treatment?

Doubtless there are some who up to the present have preferred to take chances on medical treatment rather than submit these little patients to the dangers of a surgical operation. If the idea of a surgical operation has been gastro-enterostomy or any other extensive operation, the preference has been based on just grounds. Also if the case is a mild one, and the child, with careful medical treatment, continues to show reasonable gain in weight, then perseverance in medical treatment is justifiable. If, on the other hand, in spite of careful, intelligent and well directed medical treatment the child shows continual loss in weight, if a competent surgeon can be found who is at all conversant with the Rammstedt operation, then persevering in medical treatment is, in my opinion, unjustifiable, for every day will bring the child nearer to certain doom and make the chance of surgical intervention more uncertain. In these two classes of cases the course to pursue is quite clear. But what about the cases where, in spite of all treatment, the weight remains stationary? In these cases what course to pursue is perhaps open to discussion, but such a case treated medically will gain no man a reputation. They pass from doctor to doctor and run the whole gamut of every known baby food, in the hope of "finding something that will agree with it". A great many of these will finally die of inanition or some intercurrent affection.

What about the final results of children who have had a Rammstedt operation. Five years has now elapsed since this operation was started at the Babies' Hospital, and Holt has been able to follow up a large majority of the cases and reports as follows: "When seen, the children were almost without exception in the best of health. They were plump and rosy-cheeked, nearly all above average weight, and as fine a group as any one would wish to see." He therefore concludes: "1. All those who do not improve under medical treatment in the course of two or three weeks should be treated surgically. With the more severe types only a short delay is permissible. 2. Skilled after-treatment is quite as essential to results as good surgical treatment."

My object in writing this paper is, firstly, to stimulate a more

exact and early diagnosis of this infantile condition; secondly, to place before the surgeons a consideration of the Rammstedt operation and to urge that the operation be done by a competent surgeon who has taken the trouble to familiarize himself with its technic; thirdly, to point out to the surgeon that his success will depend in no small degree on competent after-treatment; fourthly, and finally, to urge upon the profession a closer co-operation, and more team-work, firmly believing that in this way only can great efficiency be accomplished.

In the yellow fever campaign the greatest step made was the isolation of the organism *Leptospira icteroides* by Dr. Hideyo Noguchi, of the Rockefeller Institute for medical research, one of the members of a commission sent to Guayaquil, Ecuador, to study the disease. At the end of 1918, much work was still required to demonstrate that the true ætiologic agent had been discovered, but the report is that the prospect of success is most encouraging. If the germ of yellow fever has been discovered, it will still further simplify the problem of eradicating the seed-beds of the disease, which should, upon the successful completion of that task, disappear from the earth. An arrangement has been entered into with the Government of Ecuador by which an effort is to be made to free that country and the west coast of South America from this scourge. The fact that yellow fever can be controlled in the Central American countries was demonstrated during the year, when senior surgeon Joseph H. White, of the United States Public Health Service, succeeded in suppressing an epidemic after five hundred and fifty c ses and two hundred deaths had occrred. Dr. White was called in because there was great danger that the disease might spread to concentration camps of American soldiers near the southern ports of the United States.

A CASE OF CHRONIC MIDDLE EAR SUPPURATIONS, CHOLESTEATOMA, AND MASTOIDITIS, COMPLICATED BY LABYRINTHITIS, SINUS, THROMBOSIS AND MENINGITIS

By J. K. Milne Dickie, M.D., F.R.C.S. (Edin.)

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THE following case presents some rather unusual features, and on this account has been thought worthy of being placed on record. It was operated on before the outbreak of war, but the microscopic examination of the ear could not be carried out until the writer returned from active service this year (1919).

The patient, D. W., male, aged twenty-one years, was admitted to Leith Hospital on May 29th, 1914, with the following history. His right ear had been running for many years with occasional intervals when the discharge ceased. In March, 1914, he began to have pain in that ear and the discharge recommenced. In April he suffered from frequent attacks of vomiting and giddiness which lasted for a fortnight. He was admitted April 27th to a cottage hospital, where he was treated for stomach trouble. There he had severe though not constant headaches in the right temporal and occipital regions. His left arm was completely paralyzed for a fortnight and his left leg was also getting weak. He had one or two rigors and his temperature rose to 103° F. on several occasions. On the day before his admission to Leith Hospital his temperature was 102°.

Examination on admission, April 5th, 1914. The patient was rather drowsy but quite sensible. Temperature 100°, pulse 80, respirations 28. The right auricle was protruding, and there was œdema and redness over the right mastoid with pitting and tenderness on pressure. The right meatus was full of pus, and the right tympanic membrane showed a perforation with granulations. The patient could hear ordinary voice at one foot on the right side with the left ear closed with the finger. The noisebox unfortunately was not working. No tuning fork tests were carried out. There was spontaneous rotatory nystagmus to the left of the third degree,

i.e., seen even on looking to the right. The tongue was furred, but was protruded in the middle line. There was paresis of the left side of the face. The left arm was completely paralyzed, and there was distinct loss of power in the left leg though paralysis was not complete. Abdominal and cremasteric reflexes were absent. The knee jerks were equal, not exaggerated. There was some ankle clonus on the left side. The plantar reflexes were flexor on both sides. There was some rigidity of the neck. The pupils were dilated but equal. Examination of the fundus revealed choking of both optic discs. The vessels were engorged and there was a certain amount of exudation along them. The field of vision was defective on the left side. As far as could be made out by an examination in bed, the patient had left homonymous hemianopsia.

It was evident that the case was one of mastoiditis with some serious intracranial complications, probably sinus thrombosis and meningitis, and operation was decided upon.

Operation on day of admission at 10 p.m. There was no subperiosteal abscess, but the superficial tissues were inflamed. The cortex was thin and the mastoid cellular. The cells contained much pus under pressure. There was extensive caries of the trabeculæ and the whole mastoid was hollowed out by disease. The antrum contained cholesteatoma. The lateral sinus and a large area of the dura mater of the posterior fossa were found exposed and covered with granulations. Examination of the pus from the extradural abscess gave gram-positive cocci and some gram-negative bacilli. The outer wall of the aditus was removed and the radical mastoid completed. The granulations on the dura were curetted. The lateral sinus was opened and found to contain a partially organized clot. The bone was removed posteriorly nearly to the torcular, as the clot extended right to the torcular. The internal jugular vein was exposed, ligatured, and divided above the common facial vein. The wall of the vein here appeared normal. As the patient's condition at this stage of the operation was not very good, he was sent back to bed without any investigation of the functional activity of the labyrinth. For the same reason the dura of the middle fossa was not exposed.

Lumbar puncture just before operation gave fluid under great pressure but clear. During the day there was jerking of the left side of the face and the left arm and leg.

May 30th. Temperature was above normal all day. Reached 102° at 2 p.m. No vomiting.

May 31st. Wound dressed. Tissues showed no reaction. No pulsation of the dura. Neck still rigid. Kernig's sign still present.

June 1st. Became unconscious this morning. With lumbar puncture the fluid merely trickled out, but was still clear. Bacteriological report on cerebrospinal fluid showed presence of micrococcus tetragenus, confirmed by culture. Patient died at 3 p.m.

Post-mortem examination. On opening the skull cap, the dura of the right side of the cerebrum was seen to be tense and bulging. The left side was noticeably smaller. Superior longitudinal sinus contained post-mortem clot. On opening the dura, a thick coating of greenish pus was seen completely covering the whole right hemisphere and hiding the convolutions. No opening of ruptured abscess cavity seen. No pus over left hemisphere nor in posterior fossa. Left lateral sinus not thrombosed. No macroscopic erosion of tegmen tympani. Brain put in formalin for section after hardening. Owing to other circumstances the brain was unfortunately forgotten for a time, and later could not be found. The right temporal bone was removed for microscopic examination.

Microscopic examination of the right ear showed great thickening of the mucosa of the whole middle ear with small celled infiltration and cyst formation. The tympanic ostium of the Eustachian tube was almost completely occluded by polypoid thickening (Fig. 1). A fine track surrounded by cholesteatoma membrane and granulations was seen extending through the tegmen in the region of the aditus. The stapes was embedded in granulations and the niche of the round window was also filled up with granulations, but apparently no extension of the suppuration had occurred through the windows. An extension of the septic process into the labyrinth had occurred through absorption of the bony capsule of the external semi-circular canal. There were two separate erosions of the canal with a small wedge-shaped piece of bone between them (Fig. 4). The edges of the bone had a worm-eaten appearance with shallow depressions in which giant cells were seen. The fistula altogether was 3·3 mm. long. While at first sight the fistula might be thought to be due to an accident at the operation, the appearance of the edges and the fact that the piece of bone between the fistulæ would have been absent are enough to negative that supposition. The perilymph space of the canal near the fistula was filled with cellular exudate, but the endolymph canal was fairly clear. The rest of the labyrinth contained serous exudate extending as far as the apex of the cochlea. There were very few cellular elements in it except in the terminal part of the scala tympani round the orifice

EXPLANATION OF PLATES

Fig 1. Coronal section of petrous bone showing. 1. Opening of Eustachian tube into tympanic cavity, mucosa very much swollen. 2. Centre of cochlea. 3. Clot in jugular bulb. 4. Carotid canal.

Fig. 2. Section somewhat farther back than Fig. 1. 1. Tympanic cavity with hypertrophied mucosa. 2. Part of stapes. 3. Vestibule with considerable exudation. 4. Jugular bulb containing clot and formation of new bone at the edges. 5. Niche of round window.

Fig. 3. 1. Tympanic cavity. 2. Fistula in external semicircular canal. 3. Subarcuate vessels. 4. Posterior semicircular canal. 5. Clot in jugular bulb.

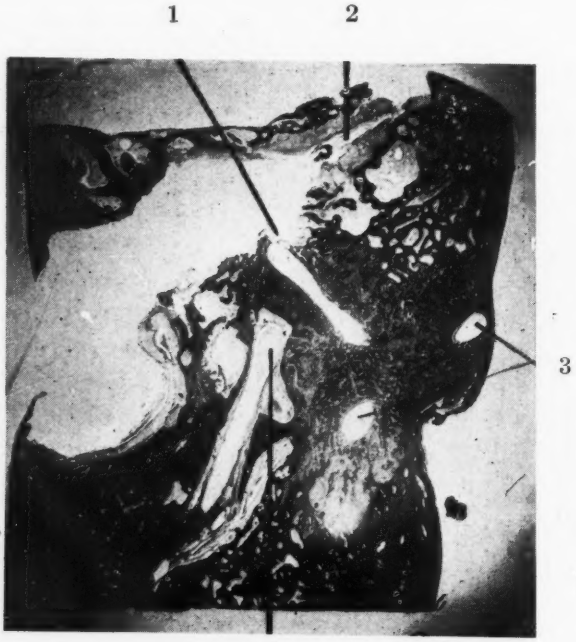


Fig. 4. 1. Fistula in external semicircular canal. 2. Track of disease leading through tegmen tympani. 3. Posterior canal. 4. Descending part of facial nerve.

of the aqueduct of the cochlea and on the secondary tympanic membrane. The jugular bulb was filled by well organized clot containing new fibrous tissue, into which some trabeculæ of new bone extended (Figs. 2 and 3). In places it was separated from the tympanic cavity merely by soft tissue. However, no definite evidence of direct infection of the bulb from the tympanic cavity could be seen. The clot in the bulb was probably merely an extension from the clot in the lateral sinus.

The case is interesting for several reasons. In the first place a cerebral meningitis localized to one side with paralytic and irritative symptoms is not at all common. Again, with a large extradural abscess of the posterior fossa and lateral sinus thrombosis, it is surprising that there was no basal meningitis. The cerebrospinal fluid was clear to the end, although organisms were found in it, and there was no purulent exudate round the base of the brain. With regard to the labyrinth, the process remained localized mainly in the external canal, where it was definitely purulent, but in the rest of the labyrinth there was merely a serous exudate. The character of the fistula in the external canal is peculiar in that there were two distinct openings. Erosions of the external canal are usually produced by an absorption of the bone on the projecting part of the capsule from pressure of a cholesteatoma mass. The resulting microscopic picture generally shows a flattening of the prominence of the canal. The infection appears to have spread by several routes more or less concurrently. Thus there had been an extension through the tegmen, another through the external canal into the labyrinth, and a third from the carious mastoid into the lateral sinus.

It is a great regret that more accurate functional tests were not carried out, but the patient was so ill that one did not wish to trouble him more than was absolutely necessary.

It is unfortunate that the possibility of intracranial complications of otitis media is not generally present in the mind of the average practitioner when he is faced with a case the symptoms of which are obscure.

The mortality of acute appendicitis has been greatly reduced in recent years, and this is due, mainly, if not entirely, to the prompt recognition of the urgency of the condition by the general practitioner. This was only made possible by the insistence of surgeons on the necessity of early surgical interference.

In the matter of the intracranial complications of otitis media, it is quite exceptional for a patient to be sent to hospital within a

fortnight of the onset of the symptoms, unless there is at the same time an obvious mastoid swelling. Very frequently the patients have been treated for acute gastritis, malaria, or cerebrospinal meningitis for several weeks before being sent to hospital, and by that time the disease has progressed so far that a favourable result can hardly be expected.

Formerly it used to be taught: "When in doubt think of typhoid," which was a very good rule, but probably more lives might be saved now that typhoid is not so common, if one were to teach: "When in doubt examine the ears."

The preparation of the temporal bone and the microscopic examination were carried out in the laboratory of the Royal College of Physicians, Edinburgh.

A NATION wide campaign is being launched as one of the first activities of the newly-created Federal Department of Health. The Dominion authorities, in granting $200,000 to assist in combatting venereal diseases, make the condition that the same amount be raised by the provinces. Each province will frame its own statute and evolve its own plans, but unity from coast to coast will, in educational matters, be given by a voluntary agency, the Canadian National Council for Combatting Venereal Diseases, representing all the provinces. This organization will endeavour to enroll members in every community in Canada and impress on the public mind the gravity of the problem. It is probable that definite surveys will be made by trained investigators in police courts, reformatories and jails, to ascertain what can be done in a preventive way. Conferences have been called by the chairman of the provincial board of health of Ontario, to consider means of strengthening the Act. Greater clinical facilities are required, and it should be less easy for victims of the disease to evade the compulsory provisions of the law, and become a public menace.

TREATMENT OF OBSTRUCTIVE DYSMENORRHŒA

By E. V. Frederick, M.B., M.R.C.S., Eng.

Peterboro, Ont.

IN describing any new type of mechanical treatment for obstructive dysmenorrhœa, one is afraid of getting into the class of ancient physicians of whom it was said that they sat on their doorsteps and extolled the virtues of their individual type of pessaries.

However, since noting that at the Mayo Clinic a solid glass cervical stem is frequently used in this condition and with apparently good results, I venture to describe another which I was using for a year before the war.

The reasons which led me to use a mechanical stem after the operation of dilatation are as follows:

1. That after vigorous and prolonged dilatation the orifice is still small.

2. That contraction soon takes place, making the operation a useless one unless pregnancy follows.

3. One believes that a prolonged dilatation of fibrous tissue causes it to become more permanently stretched.

4. It is found that in many cases of obstructive dysmenorrhœa the pain is relieved so long as a foreign body is retained in the cervix.

The theoretical objections to the solid stem are:

1. That it is solid and may cause retention of discharge.

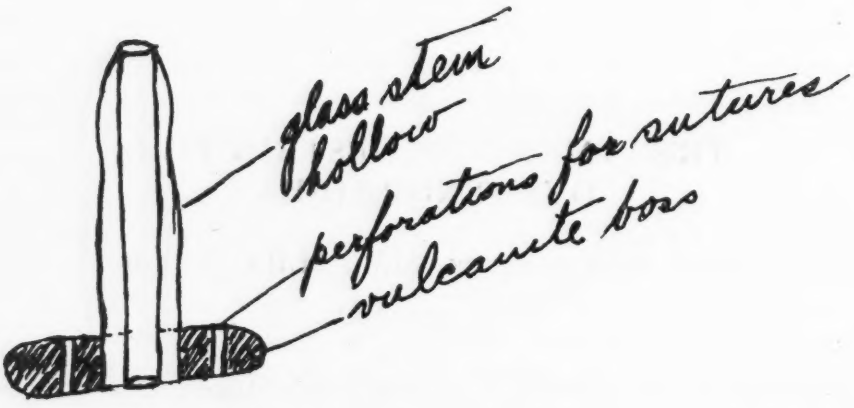
2. That its small size does not give sufficient dilatation.

3. That it may cause perforation of the recto-vaginal wall.

To overcome the objections and retain the beneficial effects a stem of the following nature was constructed.

A thick hollow glass tube two inches long, one-half inch in diameter with the upper end smoothly rounded in the flame to the lower end of which a round flat vulcanite boss is firmly fastened. In the side of this vulcanite two small holes are drilled large enough to pass a needle and silk suture.

The advantages of this instrument are:—(1) full dilatation;



(2) free exit for discharges; (3) a means for suturing it firmly with silk so that it may be retained firmly as long as desired; (4) protection against recto-vaginal wall perforation.

This stem has been found satisfactory in the treatment of obstructive dysmenorrhœa in selected cases but, since the cases on whom it was used occurred just previous to the war, it has been difficult to obtain statistics since my return. It can be made by any instrument maker or glass glower.

THE formation of a pan-American surgical college is under way. It is to embrace representatives of all colleges of all the South American republics. The mission has been entrusted to Dr. William J. Mayo, of Rochester, and Dr. Franklin H. Martin, secretary-general of the American College of Surgeons. The universities of Peru at Lima, of Chile at Santiago, of Argentina at Buenos Aires, of Uruguay at Montevideo, and of Brazil at Rio de Janeiro will be visited, and conferences will be held with the leading surgeons of these countries.

It is believed that the creation of a pan-American college will result in closer co-operation between surgeons and medical departments of the South American republics and the universities of North America.

DEMONSTRATION: PREPARATIONS ILLUSTRATING THE CAUSES OF THE TICK PARALYSIS OF BRITISH COLUMBIA, ROCKY MOUNTAIN FEVER, INFECTIVE JAUNDICE AND YELLOW FEVER

By John L. Todd, M.D., D.Sc.

DURING the past four years specimens have collected in my laboratory; I thought that some of them might be interesting to you.

1. *Tick Paralysis.* For the last fifteen or twenty years medical men practising in Southern British Columbia and in the Western United States, have seen occasional cases of an anomalous nature: a child suddenly develops paralysis, treatment is unavailing, the child dies. It was observed that in these cases, ticks were often found on the patients, attached usually to the nape of the neck. If the tick was removed in time, the child recovered. One series of such cases has been collected in British Columbia and another in the States to the South. Cases of a similar nature have been described in Australia. In British Columbia, it was discovered that lambs sometimes developed a paralysis of a similar nature; such a disease also occurs among the sheep in Australia. So there is a paralysis, associated with tick bite, which occurs naturally in children or in sheep, in Western America, in Australia and in South Africa. The paralysis has been produced experimentally at Cambridge, England, by the bites of ticks brought from British Columbia. Therefore, there is no doubt whatever that the bites of ticks can cause paralysis. How the paralysis is caused is uncertain. It seems probable that it is produced not by a parasite carried by the tick but by a poison injected by the tick as it feeds; this seems to be the case, because the symptoms always disappear when the tick is removed.

Although the nature of tick paralysis has long been known by those who live in places where it occurs, it is only recently that doctors have appreciated its nature. It was so because medical

Read before the Montreal Medico-Chirurgical Society, June 6th, 1919.

men in this country have not been sufficiently alive to the fact that insects may both produce and carry disease. Let me give you an example of an instance illustrating this point. A doctor in Montana was attending a child. The child had a paralysis which puzzled the doctor. He mentioned the case to his wife and said that he didn't know what to do. The servant who heard him, interrupted with "I come from British Columbia. If I saw a child like that I would take the tick off." The doctor inquired what she meant. He was told and, by telephoning, reached the father of the patient who was taking this child home by motor, at a roadside hotel where he had stopped for luncheon. He told the father to look for a tick. The father did so. He found it and removedit and the child got well.

Tick paralysis is only recognized as occurring in children. There are only one or two doubtful instances in which somewhat similar symptoms in adults are said to have been associated with tick bite.

In addition to these general symptoms, ugly sores occur at the site of a tick bite. They are produced by scratching and secondary infection with the ordinary pus-producing organisms. It is sometimes said that ticks burrow beneath the skin much as do chigger fleas. This is not so. Ticks sometimes are buried beneath the surface or embedded between folds of skin. This occurs only in parts, such as the scrotum, where swelling may be great. The tick remains firmly fixed to sub-cutaneous tissue and the surrounding skin swelling greatly, surrounds and covers it. A tick so surrounded dies.

2. *Rocky Mountain Fever.* This disease occurs in the North Western United States. It is a specific infectious endangitis.

The disease has been known since the earliest days of white settlement in Montana. It was first described in medical literature in 1898 and since then, several important studies of it have been made. Its presence has been reported in Montana, Idaho, Utah, Wyoming, Oregon, North California and Northern Colorado. There are yearly from five hundred to eight hundred cases, and of these about 20 per cent. die. This mortality varies; in the Bitter Root Valley, 90 per cent. of the cases die; in Utah, the disease is not often fatal.

Doctor Wolbach has shown that the disease is caused by a minute, as yet unnamed, parasite. The organism occurs as granules or as short rods singly or in pairs or groups. The longest forms measure between 1 μ and 2 μ; the ends of these forms are sometimes

pointed. The smaller bodies stain a bluish purple by Giemsa's stain. The larger rod forms have a reddish purple centre and blue ends. Occasionally the rod forms have purplish granules at either end. These organisms have been found in the tissues of man and of experimental animals—guinea-pigs, monkeys and rats—which were infected with and died from the disease.

The disease is transmitted by a tick. The tick which acts as a carrier is *Dermacentor venustus;* the tick which causes tick paralysis. Although this tick is widely distributed in North America, the clinically distinctive Rocky Mountain Fever or, as it is sometimes called, Spotted Fever, of Montana, has not been described outside of the areas which have been named.

Whenever a pathogenic parasite is transmitted by an insect vector there is a reservoir at which the carriers are infected. The reservoir of malaria, from which mosquitoes in tropical countries are infected, is provided by children. So far, no reservoir of infection for the organisms of Rocky Mountain Fever has been discovered. It will probably be found in some of the wild animals upon which *Dermacentor venustus* feeds during its development.

The eggs of this tick are laid upon the ground, the larvæ hatched from these eggs attach themselves to a host, usually a small rodent. The larvæ remain attached to their host until they are engorged. They then drop to the ground and shed their skins and, after this moulting, become nymphs. The nymphs attach themselves to a second host, usually a large mammal. The nymphs remain upon their hosts until they have fully fed, then they drop to the ground, shed their skins, and after this second moulting, the tick, now an adult, attaches itself for a third time to a host, where it remains until it is engorged and then it drops to the ground, the female being ready to deposit her eggs.

This life cycle, from egg to egg, occupies two years. Since the larval stage is passed upon small mammals it is thought that the number of ticks in a given area will be greatly reduced by a systematic destruction of the squirrels, gophers, and other small animals, which serve as hosts for the larval stage.

The lesions produced by the organism of spotted fever are identical in man and experimental animals. The lesion characteristic of this disease is an infection of the endothelial cells of the peripheral blood vessels. The parasites occur either within or outside of cells. The cells may be apparently normal or damaged. The organisms are usually in the endothelial cells of blood vessels, sometimes they occur in the cells lining lymphatics. They may

occur, sometimes in large numbers, in smooth muscles cells, and they are seen also in connective tissue and in fat cells. The reaction provoked by their presence leads to migration of leucocytes, formation of fibrin and the occlusion of vessels. The characteristic cutaneous eruption which gave the name of spotted fever to the disease is due to the blocking of blood vessels produced in this way. In rabbits, necrosis of the ear, and in guinea-pigs, of the scrotum, occurs; lesions of a similar nature are characteristic of the disease in man.

In human beings, the disease runs a course practically identical with that of typhus. The disease usually has a sudden onset; there is a high fever with its concomitants, and there is a petechial rash. About one fifth of all cases die, but the virulence of the disease varies greatly.

Treatment is entirely symptomatic; no specific is known.

From this sketch of the disease it is evident that much remains to be learned concerning it. The causative organism is a most interesting one. It is probably of a species hitherto undescribed. Its biological position and many of its characteristics are still undetermined; so far, all attempts to cultivate it have failed.

Doctor Wolbach thinks it probable that typhus will be found to have a cause similar to, if not identical with, that which produces this disease. In the field, research work should be undertaken to ascertain the source from which ticks are infected, and in the laboratory a new opportunity is afforded to experimental therapeutics.

3. *Infective Jaundice.* As is usual when a disease is known by its clinical character rather than by its ætiology, infective jaundice has been described under many names. It is also epidemic catarrhal jaundice and Weil's disease. Recent work in Japan, the United States, and on cases from the trenches in Europe, has shown that spirochætiform organisms are the cause of at least one form of infective jaundice.

Leptospira icterohæmorrhagiæ has been isolated from cases of infective jaundice. Leptospiras are found in the blood and urine of infected persons and in the urine and kidneys of infected rats. Leptospiras have been found in the kidneys and urine of wild rats in Japan, in North and South America, and in Europe. The disease is transmissible to guinea-pigs. It is possible that infection may be contracted, through the skin, by persons who come in contact with infected urine from either human beings or rats and mice.

The disease is characterized by jaundice, petechial eruptions, hæmorrhages from mucous surfaces, albuminuria, and fever, often high, which, with relapses, may persist from twelve to twenty days.

Leptospira icterohæmorrhagiæ is characterized by the slight amplitude of their numerous curves. The distance between the apices of two curves does not measure more than the thickness of the leptospira. They measure from 3 μ to 40 μ in length and are about 0·5 μ in breadth. This spirochætiform organism is not dissolved in saponin. Noguchi has proposed that spirochætiform organisms possessing these characteristics should be known as "leptospiræ". Consequently, the organism causing infective jaundice is known as "*Leptospira icterohæmorrhagiæ*".

4. *Yellow Fever.* More than fifteen years ago, Schaudin, from general considerations, suggested that a spirochæte might be the cause of yellow fever. In 1909, Stinson described a spiral organism which he found in one case, and in 1914, Macfie described spirochætes from a guinea-pig which was thought to be dying of yellow fever. More recently, Noguchi has found an organism in cases of yellow fever. It is very similar in appearance to the leptospira which causes infective jaundice, and it is more than probable that the leptospira which Noguchi has found in yellow fever will be shown to be the cause of that disease. It is scarcely necessary to add that the clinical symptoms recognized as characteristic of epidemic jaundice are very similar to those which occur in yellow fever.

Still other diseases have been found to be due to spirochætes. During the war, rat-bite fever and spirochætal bronchitis have been shown to be widely distributed. Both of these diseases, like seven-day fever, are caused by spirochætes.

5. *Spirochætal bronchitis.* Spirochætal bronchitis was first described in Ceylon. Since then it has been found at many places in the tropics and cases have been reported from Europe and North America. Acute and chronic forms of the disease are described. The acute form is accompanied by fever and scanty expectoration. In the chronic form, expectoration is muco-purulent or even hæmorrhagic; the physical examination shows no consolidation. The diagnosis depends upon the recognition of the spirochæte in the sputum and the absence of other cause for the expectoration and other symptoms.

Treatment with arsenic gives good results and the prognosis is favourable.

The spirochæte causing the disease is extraordinarily pleomorphic. It may be stout or slight, long or short, much undulated or slightly waved. Its length may vary from 5 to 13 μ and its breadth from 0·2 μ to 0·6 μ.

RENAL CALCULUS

By William Hutchinson, M.D., F.A.C.S.

THE class of renal calculi which does not present the usual "text-book picture," and the method of removal of such calculi, is an ever increasing subject of interest to both physicians and surgeons.

I shall speak first of the pathology of the condition in order that the symptoms may be better understood. This type of calculus usually starts as a small deposit of salts in the kidney substance which increases in size by gathering to itself more and more salts and remains firmly embedded in the kidney substance. As time goes on, it breaks into a calyx, grows down through it and may project into the pelvis, or branch into another calyx. These form the large branched calculi occasionally seen in museums or at post mortems. At times the calculus breaks away from its moorings and becomes impacted in the mouth of a calyx and the renal type of uronephrosis develops.

The effect upon the kidney of this type of calculus is threefold. As the stone grows, it destroys the kidney by direct pressure; inflammatory reaction is produced by the foreign body, and sooner or later, infection takes place which gives in addition the dissolving effect of bacterial invasion.

In the case where the stone is impacted in the calyx and urine is dammed back, the kidney is destroyed by the pressure of the ever-increasing urine, which, as in the other case, may become infected, forming a pyonephrosis with its subsequent destruction of the kidney.

If this picture is borne in mind, the symptoms, or I might say, lack of symptoms, will be better understood as will also the serious results of leaving the stone in the kidney.

The symptoms in this type of renal calculi are few in number. In fact, many people go through life with a large stone in the kidney and never have symptoms sufficiently severe to make them consult a doctor. The outstanding symptom, and in many cases the only one, is pain. This is usually dull and aching in character, not sharp and lancinating as in the case of a stone in the renal

pelvis. It is situated in the loin and may extend around as far as the umbilicus, but never radiates down into the scrotum, nor does it radiate up into the shoulder. It never becomes so severe that it makes the patient vomit or pass into a state of collapse, though usually after a hard day's work it causes a good deal of discomfort, but after a night's rest, it usually disappears, and for this reason it is often diagnosed as lumbago.

Hæmaturia, macroscopic in type, occurs only very occasionally, in marked contrast to the pelvic type in which it is a fairly constant symptom. Symptoms due to general disturbance are only seen in the late stages after infection has taken place and are not due to the pain, but to a general toxæmia superimposed on impaired kidney function. These symptoms consist of headache, nausea, and vomiting.

The signs in the early stages of this type of renal calculi are just as indefinite as the symptoms. The first sign and the one usually elicited is tenderness to pressure in the loin, especially in the angle between the twelfth rib and the spine. At times the tenderness can only be brought out by bimanual palpation of the kidney and at other times the main tenderness is in front. These last are the cases which are often diagnosed as gall-stones.

The next sign is usually found in the urine, which in the case of a woman, should be drawn off by catheter. The urine nearly always contains a few pus cells and occasionally a few blood cells. There are times, however, when the urine is absolutely negative and there are other times when it is loaded with pus. This latter condition of affairs occurs in the late stages and unless the presence of stone is suspected and a thorough urological examination made before the urine becomes loaded with pus, the chances of saving the kidney are enormously diminished.

At times a trace of albumen may be found, but this is of no diagnostic importance.

Enlargement of the kidney is a sign which only appears when severe inflammatory reaction has occurred, or in the late stages when infection has become a pronounced feature.

At this juncture I should like to point out the importance of an early diagnosis. The general practitioner, with the means at his disposal, is unable to make a definite diagnosis, and my object in presenting this subject is to emphasize the importance of the practitioner becoming suspicious that such a condition exists and of having the case thoroughly examined by a urologist in the early stages, in order that whatever operation is necessary may be

done before irreparable damage has taken place necessitating the removal of the kidney. I would even go so far as to say that every patient suffering from pain in the loin—even though some may turn out to be simply muscular affections—should be given a complete urological examination in order that all serious cases may be weeded out and given necessary treatment in the early stages.

The final diagnostic test of stone in the kidney is the *x*-ray, which in this type of renal calculus is almost infallible. Ureteral catheterization, as an aid in the diagnosis of the presence or absence of stone is nil, but before any operation is done it is absolutely imperative that double ureteral catheterization be done, as it may be found necessary at operation to remove the affected kidney, either on account of severe hæmorrhage or infection.

Operation is the only hope of cure in this type of renal calculus, and I do not suppose any man to-day thinks that a stone embedded in the kidney can be removed by medicine.

There is, however, a question which arises in the mind of many as to the necessity of removing a stone which produces very few symptoms and you hear it said, "why touch it, it is not doing any harm." However, because a stone does not cause severe symptoms it does not follow that it is doing no harm; in fact, the reverse is the case, because as the stone grows, it must necessarily injure more and more of the kidney. Then again there is the great danger of infection which sooner or later always intervenes. I am quite convinced that every stone embedded in the kidney substance should be removed, and that early, if there is to be any hope of saving the kidney, for if the stone has become very large, or there is a large sac of pus about it, the kidney will have to be sacrificed. Then again the danger of secondary hæmorrhage is always greater if infection is present.

In removing this type of stone one must go through the kidney substance and not through the pelvis, and here it is the dangers of the operation occur. The popular idea of the branching and distribution of the renal vessels worked out some years ago by Broedel in Baltimore, suggested that if the kidney were split longitudinally just a little behind the mid-line you could pass between the large branches and thus enter the pelvis without injuring any of them.

Although this is feasible theoretically, it is not practical, and the accidents occurring from this procedure are legion. The very fact that every one who employs this method puts in mattress sutures to control the hæmorrhage shows the ideal has not been

obtained. Then again, even if the patient does not have a severe secondary hæmorrhage, the effect on the kidney of these sutures is appalling. I had the opportunity of seeing one of these kidneys which was removed a few days after the primary operation and throughout the whole kidney there were massive infarcts.

A few years ago I became very much impressed with the seriousness of the longitudinal splitting of the kidney both in respect to the patient's life and the kidney. I then commenced the examination of the vascular supply of the kidney by means of stereoscopic *x*-ray pictures of injected kidneys and these convinced me that splitting the kidney longitudinally without injuring large vessels was purely theoretical. I then carried out a series of experiments on animals in which I split one kidney longitudinally and the other transversely and I found that both methods gave me a view of the pelvis. In the case of the transverse, the view was not quite so good, but in the case of the longitudinal I had to employ mattress sutures to control the bleeding, whereas in the transverse only a few ordinary sutures had to be used. The animals were killed after a few months, and it was found that those kidneys split longitudinally were very much reduced in size and had evidences of considerable infarction, whereas those split transversely had only a very fine linear scar and had not lost anything in size.

During these experiments I employed all the different methods for opening the kidney recommended by the advocates of the longitudinal sectioning of the kidney.

Passing to the clinical aspect of the subject, I think every one is agreed that the great danger of nephrotomy is hæmorrhage, which although controlled at the time of operation, often reappears about the eighth day and necessitates the prompt removal of the kidney. Hæmorrhage coming on at this late date is undoubtedly due to a clot giving way at the time when the sutures are beginning to soften. As every surgeon knows, the presence of infection makes the clot much less secure, and as all these cases are more or less infected, the liability to hæmorrhage is exceedingly great.

All these things being considered, it is important not to injure any large vessel, as any operation which causes injury to them is sure to have a large percentage of failures no matter how the bleeding is controlled at the time of the operation. Then again, if sutures of the mattress type are employed, a tremendous amount of infarction is produced, and as it is doubtful if the kidney regenerates, the organ might just as well be removed. In consideration of the foregoing, I would strongly urge that the transverse incision be

used, especially in cases of nehprolithiasis, particularly of the multiple type.

The method which I have found to be most successful is as follows: The stone having been definitely located by means of the *x*-ray (and, if necessary, by the injection of thorium into the pelvis of the kidney before the skiagraph is taken), a small incision is made through the capsule directly over the stone. Then the handle of the scalpel is pushed gently through the kidney tissue down to the stone. In this way the vessels are pushed aside as they are much stronger than the renal parenchyma. The stone is now gently removed by means of forceps, and if a pus sac is not present, the opening is closed by one or two ordinary sutures. If a pus cavity is present, it may be packed or drained for a few hours.

In a case where a number of stones are present, a number of small incisions should be made in the kidney over the various calculi, thus removing them through separate openings instead of through one large one, as is done in the longitudinal method. At times it may be necessary to make an opening in the pelvis also, if the stone projects into that cavity.

I should like to cite one case which illustrates these various points. A girl, aged twenty-eight, complaining of pain in the right lumbar region, had been treated for a number of years for lumbago. On examination I found she had tenderness over the right kidney, which was somewhat enlarged, and that she had pus and blood in urine. The *x*-ray showed a large mass of stones in the right kidney and a small stone in the left. The left kidney was first operated on in order to be sure that she would have one good one, as it looked as if the right one would have to be removed. On opening the left loin, I found a small stone in a large sac and that only a mere shell of kidney tissue remained. This made the case a very serious one, as it was quite impossible to remove the other kidney under such circumstances. At the same time she was suffering a great deal and it was absolutely necessary to do something. I therefore exposed the right kidney by means of a loin incision and could feel masses of stones through the capsule. I then made multiple incisions through the capsule over the hard areas and removed the stones through them. One large mass which projected into the pelvis could not be delivered through the kidney substance, so an opening was made in the pelvis, the stone broken, part of it removed through pelvis and part of it through the kidney substance. After removing all the stones, I found it necessary to put only two sutures in the kidney, and a little packing in two large cavities, as there

was practically no bleeding. The patient did not have any subsequent hæmorrhage and made an uninterrupted recovery. I feel almost certain that had I made one long incision instead of numerous small ones, secondary hæmorrhage would have occurred.

In conclusion, I wish to emphasize the importance:

1. The early and careful urological examination of all cases suffering from pain in the back, in order to discover the cases of renal calculus in their early stages.

2. The importance of double ureteral catheterization before operation.

3. The importance of small transverse incisions instead of the longitudinal or post-mortem section of the kidney.

BRITAIN'S health policy has been very clearly indicated recently by Sir George Newman, chief medical officer of the British Ministry of Health, who has issued a volume entitled "Outline of the Practice of Preventive Medicine". He reviews the whole subject and emphasizes the need for closer integration between preventive and curative medicine. In all cases the cause of disease, not in the abstract alone, but in the particular patient, must be sought. Disease must also be considered in its ancestry, as, for instance, cases of tuberculosis following measles. An improvement in medical education is essential. The basal sciences of medicine must be studied more deeply and clinical training must be more thorough. Especially must the mind of the student be directed to the beginnings of disease, its earliest signs and symptoms, notably those symptoms which are subjective, "for no laboratory experiment or mechanical device can serve as a substitute for this fundamental knowledge, to which the higher medical studies are ancillary and auxiliary."

An adequate medical service is necessary, with a systematic and co-ordinated attack on the problem. A large number of separate departments must work together, and the many aspects of the problem must be viewed at once. For example, there are the problems of heredity and of eugenics, which include those of alcohol, syphilis and tuberculosis. The care of motherhood, welfare work for infants, medical care for the school child, to all these the work of sanitation is related and so is the vast problem of industrial hygiene. Infectious diseases have to be fought and non-infectious diseases prevented. Finally research work must be carried on and the people must be educated in the laws of health and the principles of preventive medicine.

SOME OF THE SEVERER FORMS OF CHRONIC HEADACHES

By Dr. W. J. Chambers

Calgary, Alberta

I HAVE chosen as the subject for this paper, that troublesome and commonplace complaint, "Chronic Headache". Here the specialist and physician have common ground. The specialist is so often consulted about headache, only to refer his patient to a physician or surgeon, and in turn the physician or surgeon frequently sends his patient to a specialist for examination for this symptom. Generally speaking the causes are legion, and one might almost say that the attempted classifications are legion. They have been classified as organic and functional; as circulatory, toxic, and nervous; as primary, secondary, and so on. One writer divides them into intra-cranial and extra-cranial, with fourteen sub-divisions. Still another makes fifty-one sub-divisions. Some have classified them according to the location of the pain, but Campbell, Thompson, and Cabot have pointed out that the location and time of onset, severity, chronicity, etc., are not certain guides. There is a wide difference also as to the incidence of the various types. Some German writers describe indurative headaches as by far the most common, others say 90 per cent. are due to migraine. Cabot, out of three hundred cases, found 35 per cent. due to psychoneurosis, and gives migraine and indurative headaches only 3 per cent. each. Personally I have not met with many cases I could diagnose as indurative headaches.

As to the location of headaches, according to Auerbach, they are perceived in the enervation areas of the trigeminus and upper cervical nerves. According to Edinger, somewhere in the cutaneous and dural branches, which supply the attacked areas, lies the cause. According to Campbell—irritation of the sensory endings of the sympathetic nerves running in the vessel walls of the dura and brain substance, produces it. The irritation may be chemical or physical injury, pressure, anæmia, hyperemia and toxins.

I shall not attempt a wide classification, but give you a few groups that will include most of the severer chronic headaches met with every day.

Eye strain. One of the first causes to be considered is eye strain and many cases come for an examination to determine if this be present. It may be found at any age after the first decade; it often shows itself for the first time, when the child passes into a high school, or later goes into clerical or office work, or when a greater time is devoted to near vision. Hyperopia, astigmatism, myopia, or a combination of these, render clear vision difficult or impossible, without some effort on the part of the eye for distant vision, while in the normal eye distant vision requires no effort whatever. Eyes, then, with errors of refraction are handicapped. The simplest form of vision, that is for distance, is an effort, and it begins when the eyes are opened in the morning, and may be exhausted by night, whereas the normal eye only begins to work when near vision is necessary and starts out fresh.

The hyperopic or astigmatic eye not only begins near work already tired, but must put forth a greater amount of effort to see. It becomes tired and this fatigue produces frontal pain, a feeling of heaviness on the lids, sometimes sleepiness or spells of blurring. In elderly people there is a tendency to hold the book away. It obviously will be unusual to have this headache in the morning as the eyes are resting during the night, unless there has been reading or sewing until a very late hour. Such headaches are the most satisfactory to treat, as you have an obvious cause, which has a ready remedy in lenses to relieve the eye of its handicap, its abnormal need of accommodation, and to render distant vision clear with the ciliary muscle at rest. The relief is directly in proportion to the need and is often very striking.

Migraine Headache. Classical symptoms are scintillating scotoma, often resembling an outline of fortifications. Localized headache usually is unilateral, culminating in nausea and vomiting. There is often a family tendency in women in whom attacks often coincide with the menses. The attacks may cease during pregnancy, and tend to disappear for good at the climacteric.

Herbert Fisher, of the Royal London Ophthalmic Hospital, who has been a sufferer since he was fourteen years of age, writes from personal experience and observation. He describes the migraine spectrum, lasting for half an hour. It is symmetrical and may be represented by scotoma, expanding from a central point. It may first appear in the temporal periphery of the fields, that is, be bi-temporal, or may affect homonomous halves of the fields. In the latter case, it will cause hemiopic loss of vision in field implicated, and headache will develop on opposite sides of the head.

This description agrees well with the idea that this headache is initiated in the optic tract. Fisher suggests that the swelling of the pituitary body may be the cause of the initiation. The cessation of migraine during pregnancy, when the pituitary body undergoes a profound modification and at the climacteric is in favour of this suggestion, as are also the facts that the slowing of the pulse rate, and the secretion of an increased amount of urine—two constant symptoms in his own case—are also produced experimentally by injecting the hormone of the gland into animals. He therefore concludes that periodic temporary swelling accompanying functional over-activity of the pituitary body explains migraine better than any other hypothesis.

Pardee of New York would seem to agree with Fisher, as he describes pituitary headaches occurring at the menses accompanied by nausea, vomiting, and polyuria, in patients who show other evidences of dyspituitrism—dark, coarse, abundant hair, nasal eyebrows, moustache in females and occasionally optic atrophy.

Cheney describes paroxysms of migraine which *he* attributes to auto-intoxication and chronic intestinal stasis.

Nasal Headaches. Under this heading are included headaches due to abnormality in the nose, or its accessory sinuses. Sometimes we have evidence that headache is jointly produced owing to the oculo nasal distribution of the ophthalmic nerve and the nasal defect present inhibits our best efforts to correct astigmatism.

Generally speaking nasal headaches are produced by pressure, by vacuum, by venous obstruction, by retained pus, or by acute inflammation of the mucous membrane lining an unyielding cavity.

A common form of pressure is a deviated septum or septal spur pressing on the inferior turbinal, or hypertrophied middle turbinal pressing on the septum at the upper meatus. Other causes are cystic degeneration of the middle turbinal bone and polypi of the nose. In such cases we often have stagnation of secretions, and reabsorption of a more or less septic material. There is stasis of the cranial lymphatics and, some maintain, cerebral venous obstruction.

In cases of empyema of the sinuses, there is a history of sudden onset, dating from a severe cold or influenza attack. The pain is intense, and may show a tendency to periodicity, like supra-orbital neuralgia. In cases where there is some drainage the pain is usually most severe in the morning, and later in the day gets much less, probably due to the rather free outpouring of pus, and lessening pressure. They may feel so well in the evening as to suppose that they are finished with the attack, and were

it not for the more or less profuse discharge these attacks could be taken for neuralgia.

The pain is described as supra-orbital in inflammation of the frontal sinus, circum-orbital, in that of the antrum, and post-orbital, or over the ridge of the nose, in ethmoidal or sphenoidal disease. Great mental depression is not uncommon, and in chronic cases, I have had them complain that they felt as though they were rapidly growing old. There is always tenderness on pressure over the part involved in acute but not necessarily in chronic cases.

In sphenoidal sinus cases, one must be on the look out for ocular symptoms, disturbances of vision, or cutting off of the fields, from pressure on the optic nerves. As a rule the diagnosis is readily made by examination internally, with the aid of cocaine, when a trickle of pus will decide which sinus is at fault.

Many or all nasal headaches may be thought by the patient to have their beginning in a cold in the head, and all are aggravated by a cold in the head. The pain is always aggravated by stooping over

Vacuum Headaches. When speaking of headaches of nasal origin, there is another one known as vacuum headache. A low grade constant headache without symptoms of nasal obstruction, or secretion of pus, and made worse by the use of the eyes. The mechanism of it is that air in the sinus, frontal or ethmoid, is partially absorbed, and as there is no ingress the negative or vacuum air pressure, which results, makes the walls sensitive. The floor in case of the frontal sinus is thin, and has attached to it the pulley of the superior oblique, which is pulled on by this tendon in the convergence of near vision.

Ewing was the first to recognize these cases. He discovered a kind of headache, due to near work, which was not relieved by glasses, or in cases where there was absolutely no refractive error. He described a tender point at the inner upper angle of the orbit, Ewing's sign. There is found on examination to be no free passage of air into the sinus. Shrinking of the upper part of the nose with cocaine, relieves it; occasionally they tell of relief following blowing the nose, and a wheezy sound of air being forced up into the frontal sinus.

Fatigue Headaches. (Auerbach). Headaches caused by neurasthenia, exhaustion or chronic fatigue, which can be produced experimentally by fatigue.

This headache is common in girls who overwork at school, or at office; or in teachers; and women often poorly nourished who, by frequent pregnancies, by overworking for their children and household duties, with their deadly routine, year in and year

out, and no holiday, have reached a state of general debility and the headache they may have at the menstrual period, becomes a regular occurrence. Indigestion, flatulence and constipation often follow, later on anæmia. These headaches consist of a heavy feeling and steady pain, frontal as a rule, bi-temporal, or about the eyes; the scalp is sensitive and the eyes are painful on looking from side to side. The headaches are not of the shooting, boring, constricting type, complained of in migraine, nor is the pain so severe. There is no visual phenomena like scotoma. Sometimes they know that entertaining, house cleaning or a theatre party, or an evening at the movies will be the exciting cause; sometimes even going to church, or a shopping expedition will be enough. Such persons commonly, therefore, find them when they wake up in the morning. These cases usually last only a day, and pass off with a good night's rest. There is rarely nausea; and rest, not drugs, gives most relief.

It is significant that they are rarely complained of by the foreign born, whose standard of life is not of the highest, and whom the appearance of an untidy house does not worry, and in whom social duties do not overtax the strength. The physical, rather than the intellectual, side is more developed.

Treatment as laid down by Edinger of Frankfort is only rest and forced feeding. Frequently simply getting away from the drudgery and routine of home life will bring about a great improvement in health, and a lessening in the frequency of the headaches. It is not much use to try to help them unless you get them away from home and the care of children. Many of them who cannot go to a distance, or to a rest house, could at least go to a local hospital, where, with a bright room, enforced rest and forced feeding and congenial nurses, they could really get everything that the much famed sanatorium and specialist can supply, and the cost is within the reach of all. To those who must be treated at home, we prescribe more hours of rest, the curtailing of social duties, the increase of diet, and a mid-day rest.

Syphilitic Headache. Syphilis is suspected of being the cause if the headache has a distinct nocturnal exacerbation. They are of a most persistent chronic character, and may be due to a variety of causes, perostitis of cranium, meningitis and intracranial gummata. They usually respond readily to anti-syphilitic treatment.

I shall not consider the headache of constipation, or the subacute headache of intracranial diseases, such as meningitis, tumour or abscess of the brain, as these are more within the province of the physician and surgeon.

CASES OF ECTOPIC PREGNANCY

By F. W. Gershaw, M.D.

Medicine Hat, Alta

FROM a practical point of view any form of extra uterine pregnancy may be considered as giving rise to the same phenomena as a tubal pregnancy. It is true that cases of ovarian pregnancy and of pregnancy occurring at the fimbriated end of the Fallopian tube are on record, but they do not differ as far as symptomatology is concerned from cases of ruptured tubal pregnancy that continue to develop. An interstitial pregnancy may rupture into the uterus and give rise to phenomena which might lead one to consider that a normal pregnancy had been prematurely interrupted. All cases in which the ovum is attached outside the uterine cavity from the clinical point of view, may be considered as cases of tubal pregnancy.

The cause of tubal pregnancy is not known. Of the ten cases of which I have notes, long periods of sterility had preceded the condition in six of them. Among the causes usually mentioned as giving rise to retention of the ovum in the wall of the tube are constrictions and adhesions from old inflammation, thus the ovum may lodge in a diverticulum and become embedded in the wall of the tube. In this case the attachment of the ovum is precarious, and feeble decidua is developed. As the growing ovum distends the tube, the trophoplast erodes the maternal tissues, so that the thin circular and longitudinal muscle fibres of the tube are distended to such an extent that rupture finally occurs. The rupture may take place into the broad ligament itself, or directly into the free abdominal peritoneal cavity. In the latter case the severe hæmorrhage may lead to sudden death, when rupture takes place into the bases of broad ligament the hæmorrhage is less severe and a pelvic hæmatoma may be formed; clotting takes place, but there may be from time to time secondary hæmorrhage of more or less severity.

Read at the annual meeting of the Alberta Medical Association, September, 1919.

Symptoms. The patient misses one period and within the next two weeks irregular hæmorrhages occur; morning sickness may develop and usually the mammary signs and other definite evidences of pregnancy manifest themselves. Not infrequently the patient complains of colic like pains in the hypogastrium, and bimanual examination at this time may reveal a small mass at one side of the uterus, suggestive of a distended unruptured tube. It sometimes happens that even when a period is not missed, the patient is seized with sudden severe pain in the lower abdomen and rapidly becomes faint, and the signs and the phenomena of serious internal hæmorrhage manifest themselves.

In early cases a bimanual examination may not enable one to make a diagnosis. The ruptured tube being soft and collapsed and the blood being free in the abdominal cavity, it is difficult to recognize what has taken place. In five of my ten cases by gentle palpation a mass could easily be felt displacing the uterus forward or to one side. In the other five nothing very definite was elicited by bi-manual examination, but the other symptoms were so marked that diagnosis was fairly certain. In all of my cases one period had been passed when pain, irregular vaginal hæmorrhages and fainting spells began. In only one case did the symptoms of shock attended by pain and internal hæmorrhage occur, and she gave a history that would indicate that probably smaller internal hæmorrhages had been occurring from time to time within the preceding ten days. One patient stated that she had been losing an enormous amount of blood daily for a week, and that a chiropractor had been reducing dislocated vertebræ for her, promising her relief.

The pain is always a marked symptom in these cases. It may precede rupture of the tube and may be explained first as due to the stretching of the muscular tissue in the wall of the Fallopian tube. Again, contractions of the wall may be responsible for it to a certain extent, and it is probable that after rupture occurs, irritation of the peritoneum from the presence of the fluid blood gives rise to considerable pain.

Two of my patients complained of marked tenesmus, which I thought could be explained as being due to the presence of a considerable quantity of blood in the pouch of Douglas which caused undue pressure upon the rectum. In two of my cases a well-formed decidua was expelled. Salpingitis, appendicitis, and ovarian tumours may give rise to symptoms which may lead to a diagnosis of ruptured ectopic pregnancy being made It is not uncommon

for the symptoms of ruptured tubal pregnancy to be mistaken for those of abortion of an ordinary uterine pregnancy.

In some cases the ovum may be primarily attached to the fimbria of the tube, the surface of the ovary, or on the peritoneum, and may develop uninterruptedly till term, fœtal movements being active. Symptoms suggestive of labour may manifest themselves at or about full term. Following this it is recorded that in many cases in which the symptoms have passed off, the liquour amnii becomes absorbed, the fœtal remains mumify or calcify, and the shrunken remnants may be retained for years. Sometimes in these cases suppuration or abscess formation in later years may reveal the nature of the cause.

It has been thoroughly established that once a diagnosis of ruptured ectopic gestation has been made immediate operation is demanded. If the symptoms of collapse are profound, some question as to whether the operation should be undertaken at once arises, but most authorities believe that the safer procedure is immediate operation, as by this means the bleeding points may be closed. The procedure is usually, after the ordinary surgical preparations have been made, to open the abdomen by the lower mid-line incision. The peritoneum is usually found dark in colour. The hand is passed into the pelvis and the affected tube and ovary rapidly brought into view. A pressure forceps is then applied between the mass and the uterus, and another one on the distal side of the ruptured tube. By this means the hæmorrhage is promptly controlled. The tubal sac is removed but the ovary is left if at all healthy. Ligatures are then applied and the raw edges stitched together and covered with peritoneum. The opposite tube should then be examined. During and after operation two pints of saline may be given intravenously or subcutaneously.

The woman is not sterilized as a result of this operation, and of the cases which I have met, six have given birth to normal healthy children since operation.

When ectopic gestation is discovered in the later months of pregnancy it is generally conceded that it is inadvisable to delay operation till the child is viable. In operating on these later cases the removal of the dead placenta is as a rule easily accomplished but in dealing with the living placenta the terrific bleeding attending efforts at its removal makes the operation one of extreme gravity. According to Sittner, who has made a collection of a large number of cases recorded in literature, it is evident

that the results of immediate removal of the placenta give the most favourable results. When the placenta is left to come away gradually, he states that the mortality is as high as 57 per cent., whereas in cases where it is removed at once, the mortality was 18 per cent.

When the placenta is left to come away by itself, the course followed is to cut the umbilical cord close to the placental surface and to stitch the wall of the fœtal sac to the parietal peritoneum, packing the cavity with gauze. The gauze is removed in three days and the sac repacked. Usually the placenta comes away in from twelve to fourteen days, but there is great danger of secondary infection and suppuration.

In my opinion there is no more gratifying operation in surgery than that performed upon patients whose condition is of the most extreme gravity from ruptured tubal pregnancy.

THE convention of the American Public Health Association at New Orleans was attended by fifteen hundred health experts from all parts of the United States, Canada, Mexico and Cuba. The presidential address by Dr. Lee K. Frankel, of New York City, was a statesman-like foreword, not alone to public health workers, but also to the public at large. Dr. Frankel recommended an amendment to the United States Constitution in order to allow the establishment of a federal Ministry of Health as was lately accomplished in Canada and Great Britain. He also urged the American Public Health Association to appoint a standing committee to follow and study closely the compulsory health insurance movement—a movement whose aim is to establish laws comparable with our own "Workman's Compensation Act".

The milk question was also comprehensively dealt with, and it was the unanimous opinion of the conference that all milk which did not conform to the standards of certified milk should be pasteurized. Several of the largest milk dealers of the continent attended the conference, and publicly stated that their object was simply to learn how to produce a safe milk for the public.

CHRONIC INTUSSUSCEPTION WITH POLYPUS

By L. G. Pinault

THE case I have the honour to report to this meeting is rather uncommon, and one which I thought would interest some of you. The two conditions which were existing—invagination of long standing and polypus of the intestine—are not encountered often enough to be placed in the category of common occurrences.

If malign tumours of the intestinal canal are met occasionally by the surgeon the benign neoplasm is rare, and the same can be said of intussusception which is met still less frequently in adults than in children.

Intussusception of long standing is still more rare, but, when it occurs it is generally in adults, and is usually occasioned by a cicatrized ulcer or a neoplasm.

Only 8 per cent. of all cases of invagination of the bowels are associated with polypus and its situation is generally at the lower part of the ileum. As to the mode of production of such accidents, it has been suggested that invagination subsequent to intestinal growth is caused by the excitation of an intense peristalsis at the point of attachment of the tumour, and not by the tumour itself, preceding and drawing in the intussusceptum. Some who wrote on the subject took the view that the portion of intestine bearing the tumour prolapsing inward and towards the intestinal lumen, excites energic peristalsis, and is then being swallowed by peristaltic waves from above. The invagination increases by more and more of the sheath passing into the intussusceptum.

When produced this variety of intussusceptum undergoes certain changes which are common to all kinds of invaginations. The invaginated part being constricted there is interference with the venous circulation, and, as the invagination increases the mesentery is pulled down; the venous channels are obstructed and the congestion resulting will give rise to one of the most characteristic symptoms of the disease; bloody evacuation from the rectum. When the arterial circulation is interfered with, gangrene of the intussuscepted part soon appears, and that portion may be cast off in one mass. Such cases are found reported, and some of them as recoveries.

Symptoms differ with the form. *In acute intussusception*, very rare in adults, the most important symptom is acute pain, paroxysmal, colicky in nature, and accompanied by vomiting. Following comes a condition of shock characterized by an anxious expression of the face, pallor of the skin, rapidity of the pulse, with cold perspiration and shallow respiration. Several hours after the onset of pains, there may be an escape of bloody mucus from the rectum. The tumour is not always felt. If nothing is done gangrene will develop peritoneal sepsis.

In chronic intussusception the symptoms are those of chronic obstruction of the bowels, adding to them the possibility of feeling a tumour. Slight attacks of colic occur frequently, but they are not often severe, until the obstruction is almost complete. The colics may be accompanied by visible and palpable peristalsis, and spasmodic contractions of the intestines. They increase in frequency and severity and quite often food and aperients bring them on. Constipation may also alternate with diarrhœa. The usual distension of the bowels will make the feeling of a tumour more difficult.

All these intestinal disturbances will generally bring loss of weight and strength. When the tumour cannot be felt, an exact diagnosis of the nature of the obstruction is almost impossible, and only a laparotomy will reveal the real cause of the stricture.

Case report. S. L was sent to us on July 18th, 1918, for intestinal troubles. This man, thirty-seven years old, had a good family history. His personal history was also good, having enjoyed perfect health till February, 1918, five months previous to his coming to the hospital.

His troubles began by slight abdominal cramps especially around the umbilicus. These pains were not of a serious enough nature to force him to seek medical assistance till June, four months after the onset.

During this time abdominal distress was the only inconvenience for there was no vomiting, no constipation, no diarrhœa, and no loss of flesh. In the last week of June, about three weeks before I saw him, the conditions changed quite suddenly. The pains became more severe, almost constant, and causing frequent vomiting. Diarrhœa appeared, and with it loss of weight. The patient, from the information I could obtain, never passed any dark or bloody stools and never had complete obstruction.

When he came to us his condition was fairly good, being able to walk well, although he had travelled by train for a long distance.

At the inspection we could observe very marked peristalsis waves between the umbilicus and the pubes. Abdominal palpation could not detect any tumour, and rectal digital examination was also negative. From the history given and the interpretation of disturbances observed I made the diagnosis of chronic intestinal obstruction of unknown nature, and performed the operation the next day.

The abdomen was opened by a right rectus incision, and my hand introduced into the abdominal cavity felt down in the pelvis, behind the bladder, a long sausage shaped tumour, which was drawn out and proved to be an invagination. This invagination was about ten inches long, and was situated on the small intestine a foot and a half from the ileo-cœcal valve. Through the walls of the intestine at the apex of the intussusceptum we could feel a tumour the size of a plum, and above the neck of the intussusceptum there was a marked dilatation of the intestine, and its muscular layers were thickened, and continuously contracting under my fingers.

Reduction was out of the question in this case, and the resection was the only thing to do. After clamping the ileum above and below the intussuscipiens, or sleeve containing the invaginated part, was opened by a circular incision, and the intussusceptum excised above its neck.

An end to end anastomosis was done with two rows of suture, Number one, chronic gut inside and a fine silk outside. The removal of a diseased appendix and cutting of strong Jackson's membranes at the ileo-cœcal region completed the intervention.

The abdomen was closed in the usual way, and recovery took place without the least incident. The bowels evacuated two days after the operation, and the patient wanted to go home seven days after having that part of his bowels removed, but I succeeded in keeping him in the hospital fourteen days.

This man has been working ever since, and one month ago he wrote me that he was in perfect health.

The microscopical examination of the tumour, cause of the invagination, made by Dr. Hingston, Montreal, showed to be a muccous polypus. Considering the rarity of intussusception on adults, considering the rarity of invagination of long standing, and the uncommonness of benign tumours of the small intestine, this case appeared to be odd to me, and worth reporting.

A CASE OF ENDOTHELIOMA OF THE PLEURA WITH MULTIPLE METASTASIS

By A. Vallee, M.D.

Professor, Laval University, Quebec

I ONLY want to report a short observation upon a patient treated in the wards a few years ago and whose post mortem was particularly interesting.

Observation. The patient, female, forty-six years old, entered the hospital on the tenth of September, complaining of pain in the right side of the chest, oppression and general debility.

No particulars of interest in her personal or family history, except a pleurisy fifteen years ago. Married twice and has had thirteen children. Nine weeks ago she first complained of slight uneasiness in the right side with a particular pain near the breast, marked chill and oppression. Temperature, 99°; patient can't rest and breathing is very uneasy.

At first inspection of the chest, the right side seems enlarged, especially at the posterior region of the thorax. Dulness extends all over, the liver is lowered and the heart driven back to the left. Vocal penutus is abolished, respiration murmur is weak, and all the signs of pleurisy are easily detected. A first tapping gave 1200 c.c. of a reddish, fibrinous liquid, a second 1000 c.c., and a third 1300 c.c. at very short intervals. General condition of the patient rapidly sank in the meantime, temperature not rising over 101° F., pulse not over 125, and respiration not over 43. Patient died on the sixth of November, clinical diagnosis of carcinoma of the chest having been agreed on; scarcely any coughing was noticed since her admission to the hospital.

Post mortem. At the opening of the chest, one first noticed a compact and adherent block of a white colour, filling up the right cavity and extending into the mediastinum. The pleura over one centimetre thick, still contained a few hundred c.c. of a reddish liquid. After tedious labour, all the contents of the chest were pulled out in one single mass. The right lung had altogether dis-

Read at the fiftieth annual meeting of the Association, Quebec, June 25th, 1919

appeared, transformed into a tumour of consistent nature, extending to all the glands of the mediastinum gathered into a large mass which could not be isolated. Under the pericardiæ membrane, tumours, varying in size, from the size of a small nut to that of an egg's yolk, could be seen constituting many sessile growths all over the heart, and of the same white yellowish colour. Nothing in the left lung or pleura. The right cavity is enlarged in such a manner that it is more than twice the depth of the left. In the deep part of the right breast a large flat tumour of same consistency and appearance as that of the pleura and lung is made out, although it cannot be seen by inspection. A large growth is found also in the head of the pancreas, and a very small one in the liver. The peritoneum and other viscera are normal.

These tumours were seen to be all of the same nature on microscopical examination, and all features agreed to prove the diagnosis of endothelioma.

The endothelioma already described under different denominations by Cruveilhier, Robin, Virchow, and in a definite manner by Recklinghausen, Rindfleish, Eberth* is a typical but rather infrequent tumour developed in connective tissues. Especially seen in the meninges, a particular form also develops on all serous membranes especially on the peritoneum and pleura. The abundant and repeated formation of a bloody liquid, the macroscopic appearance of the tissue, thick, dense, with sclerosed and fibrous appearance; the microscopic characters showing a regular growth of endothelial cells thickly infiltrated through the whole of the surrounding tissues, the epithelial appearance of such cells and absence of blood vessels; the symptoms first localized to the pleura and the specially marked development on that membrane, with portions of the lung still persistent, at different spots the metastases in glands, heart, breast, pancreas and liver, all agreed to prove the pathological diagnosis of a typical endothelioma originating in the pleura and spreading in a manner which is not generally seen with carcinoma, while the microscopic aspects could not point to sarcoma.

This variety of tumour cannot easily be diagnosed from a pathological point of view, either at the clinical examination or at first sight at the post mortem. Microscopic examination must complete the conclusions and all characters must be taken together to put it where it evidently belongs.

*Letulle *et* Nattan-Larrier —*Précis d'Anatomie Pathologique. Tome 1.*

Case Reports

APHASIA IN A LEFT-HANDED INDIVIDUAL CONSEQUENT UPON A RIGHT CEREBRAL LESION

By Fraser B. Gurd, B.A., M.D., F.A.C.S.
Montreal

THE following notes made during the treatment of a case of gun-shot wound of the head are thought to be of sufficient interest to justify their being placed on record.

Private V. S., 1st Black Watch, 22nd Casualty Clearing Station.

History. Admitted to casualty clearing station, 1 p.m. December 9th, 1915, from ambulance train, with the history that he had been evacuated from a forward casualty clearing station early in the morning with a diagnosis of "gun-shot wound head—scalp wound." During the morning he had become unconscious and consequently was dropped from the train.

Condition upon admission. Patient was apparently injured by bomb explosion December 8th, causing wound of right side of head, right thumb, and right thigh. At the time of admission patient was drowsy and but slightly conscious; he was unable to talk but there was no evidence of paralysis. Pulse apparently increased in volume, rate 52–59. During two hours' observation, his condition did not improve and pulse rate slowed somewhat, and as examination of small wound over right parietal region showed a perforating wound of skull, he was operated upon at 4 p.m.

Operation. A scalp flap about 8 cm. across its base was thrown down having wound about its centre, this exposed a small irregular opening in the skull ·4 cm. in greatest diameter. A plate of bone 3 x 4 cm. in diameter was removed.

The dura was the site of an irregular wound 1·5 cm. in size; beneath the skull and anterior to the perforation was a collection of blood 15–20 ccc. in amount, the result, apparently, of slow bleeding from a branch of the middle meningeal artery.

The artery was ligated and the opening in the dura enlarged. Several bony fragments were removed and a cavity in the brain easily admitting the index finger its entire length was revealed.

This cavity ran slightly inwards and downward. A small portion of foreign substance could be palpated with the tip of the finger, but could not be localized with forceps.

The scalp wound was closed with sutures and a drainage tube 1·5 cm. in diameter inserted 2·5 cm. into the brain through an enlargement of the original wound.

Post-operative course. For two days patient remained unconscious, then gradually recovered his ability to make himself understood by signs. He remained completely aphasic until about December 18th, after which time he daily regained more and more of his power of speech.

Notes made January 1st, 1916, read as follows: "At the present time he is able to converse with comparative ease, although he is limited in his choice of words and occasionally uses wrong words. He was able to write two days before he was able to speak, although even yet he writes only with difficulty. He obviously has suffered from and still has, to a moderate degree, motor aphasia."

"Examination of nervous system is negative at present, except for the following: Paresis of lower branches of left facial nerve. Slight deviation of tongue to left with slight atrophy of left half of tongue. There is hyperæsthesia of left side of face. Muscular development upon left side of body and limbs is greater than on right. With the exception of irregular areas of anæsthesia and paræsthesia over the external surface of the left arm and forearm, and a loss of sensation to heat and cold over the left border of the chest and over the left forearm, sensation throughout the body is normal. During convalescence, no febrile reaction occurred; appetite has been good. He is now able to walk about with ease, but complains of headache if he tries to read or think for any considerable length of time as in answering questions."

Discussion. Questioning the patient brought out the following facts: Playing cricket, bowls right handed, bats left handed; writes right handed; uses pen-knife left handed. He relates that as a child he used his left hand for everything. (This in view of increased power on left side is apparently still the case except for writing, etc.) He is therefore apparently a case of motor aphasia, due to an injury to the right side of the brain, in a naturally left-handed individual who has been taught to use his right hand.

SYNOPSES OF CASE REPORTS FROM THE MONTREAL GENERAL HOSPITAL

AN UNUSUAL CASE OF RETRO-PERITONEAL CONGENITAL CYST PROBABLY ARISING FROM THE WOLFFIAN BODY

By J. M. Elder, M.D.
Surgeon to the Montreal General Hospital

MONTREAL G. H., No. 3747. Female, age two years, was struck by an automobile and brought into the hospital, complaining of pain in the right side of the abdomen. There were no external marks of injury. The urine contained blood, and a diagnosis of rupture of the right kidney was made. The patient had a temperature of 100° on admission, and for a week ran an intermittent temperature, rising at one time to 104°, but this gradually subsided. Routine *x*-ray examination was negative. About three weeks after admission a mass, evidently fluctuating, was felt in the right side of the abdomen. This mass was thought to be retro-peritoneal, and a tentative diagnosis of peri-renal hæmatoma, resulting from the injury, was made. This supposed hæmatoma increased in size as time went on. A needle introduced into the median line, suprapubically, tapped a cavity from which clear fluid was obtained. This fluid was found not to be urine, but to consist of serum-like fluid with a low percentage of albumen and no urea.

An exploratory laparatomy was done. The incision was made through the right rectus muscle at the level of the umbilicus. The abdominal contents appeared to be normal, except that a large right-sided retro-peritoneal cyst pushed everything over to the left. This cyst occupied most of the abdominal cavity. After packing the bowels off to the left, the peritoneum was opened posteriorly and a large quantity of clear fluid removed from a cystic cavity. The upper extremity of this cavity extended to the right kidney and the lower extremity was connected with the right ovary and Fallopian tube. These organs appeared normal. The opening in the cyst wall was stitched to the skin leaving an open stoma through which the cyst, after swabbing its walls with tincture of iodine, was packed with flavine gauze. The abdominal cavity was then closed in the usual way, without drainage. Every few days the gauze was removed from the cystic cavity and a few drops of tincture of iodine put in, when it was again loosely packed with

sterile gauze. The recovery was quite uneventful, and the cyst closed completely, leaving a depressed scar at the side of the stoma. The operation was done on September 30th, 1919, and the wound was quite healed in twenty-seven days. A portion of the cyst wall and some enlarged mesenteric lymph nodes were removed at operation. Histologically, they showed no embryonic structures, and only slight inflammatory changes.

The final diagnosis was made purely on the anatomical findings at the operation.

SUMMARY. Female, age two, suffers injury to the right kidney as evidenced by blood in the urine and reactionary temperature. The injury causes a congenital retroperitoneal cyst on the same side to undergo rapid increase in size. The anatomical situation and the general characters of this cyst are such as to warrant a diagnosis of cyst of the Wollfian body.

Differential diagnosis. Tumour of kidney; rupture of kidney with peri-renal hæmatoma; retro-peritoneal cyst.

Cure was effected by obliterating adhesions produced by mechanical and chemical irritation (gauze and iodine).

BURIED CHROMIC CATGUT SUTURES ACTING AS FOREIGN BODIES AND CAUSING RECURRENT ABSCESSES THIRTY YEARS AFTER THEIR INSERTION

BY. J. M. ELDER, M.D.

Surgeon to the Montreal General Hopsital

MONTREAL G. H., No. 5303. Miss G. D., age forty-four years, unmarried. About thirty-three years ago this woman was operated upon at a general hospital for what she said was an abscess of the abdominal wall. She is an exceedingly stout woman. A broad transverse linear scar extends across the abdomen midway between the sternum and umbilicus. Two years ago an indurated mass, which broke down into an ulcer, developed in the left half of this scar. This was operated upon and completely excised. About a month ago another mass, which developed into an ulcer, appeared in the old scar. This was near the first ulcerated area. and it was for this that she came into the hospital. This ulcerated area, which was completely excised, was found to be sharply confined to the skin and subcutaneous adipose tissue and did not involve the underlying muscles.

Stay sutures of silk were passed through the wound and then the skin was closed with interrupted silk worm gut sutures without drainage. The stay sutures were removed in four days, the wound healed by first intention in ten days, and the patient left the hospital, apparently well, in two weeks.

Sections of the material removed at the two operations show acute and chronic inflammation, foreign body giant cells, and suture material of chromic catgut. This suture material which must have been used at the original operation thirty odd years ago, to close the gaping wound in the adipose tissue, was not absorbed, and has acted as foci for infection. The infecting organism was staphylococus albus.

In a recent article in the *British Medical Journal*, attention was called to the fact that catgut sutures, while readily absorbed in muscle tissue, tend to become encysted in fatty tissues. This case seems to bear out that contention, and chromic catgut would of course last longer. It is a well-known fact that the presence of any foreign body in the tissues predisposes to infection, and this is very liable to follow even slight traumatism. This appears to have been the case here, and if so, it may happen in any other portion of the old scar.

SCURVY

By F. G. Finley, M.D.

Physician to the Montreal General Hospital

MONTREAL G. H., No. 5501. Male, English, forty-one years old, admitted December 9th, 1919, discharged December 23rd, 1919.

Complaint. Swelling and bleeding of the gums and weakness of the feet and ankles.

Family History. Unimportant.

Past History. During the past five years he has suffered from gastric discomfort, which he attributes to eating fresh meat. He lives alone and does his own cooking. He has not eaten vegetables for a "long time". His diet has consisted practically of salt meat and bread alone.

Present Illness. About six months ago he noticed swelling of the gums and feet. Three weeks ago he began to feel weak in the legs. This was followed by a feeling of general weakness for which

he came into the hospital. The right knee became swollen and painful during the past few days.

Present Condition. Small punctate hæmorrhages are scattered over both thighs and legs. These are chiefly associated with the hair follicles and many of them are raised and distinctly palpable. On the dorsum of the right foot and extending around the right ankle there is an indurated area with greenish margins and numerous ecchymotic patches of a reddish brown colour in it. The bursa beneath the ligamentum patella is swollen, fluctuating and slightly tender. The tongue is slightly coated. The gums, both upper and lower, are swollen, reddened and project in tongue-like processes between the teeth, in places half covering these structures. The gums bleed readily but the teeth are sound and are not loose. There is a soft systolic murmur at the apex of the heart, regarded as functional. The other organs and urine are normal. There is an evening rise of temperature to 99 2-5°.

Blood examination shows: red blood corpuscles, 4,610,000; white blood corpuscles, 10,200; hæmoglobin, 90 per cent.

Treatment. A mixed diet, including two oranges daily, was given. In three days a distinct improvement was noted. Only traces of the petechial hæmorrhages remain and the indurated and ecchymotic area about the right foot and right ankle have become much smaller. The gums have retracted considerably. By December 17th they were almost normal and only slight discoloration of the right foot remained. This discoloration was practically gone by December the 23rd. At this time the gum showed a slightly spongy condition. His strength had returned and he felt well.

Cases of scurvy are not often seen in Montreal, but an occasional example presents itself. These are mostly among foreigners whose chief diet has consisted of salt fish or meat, and bread. Rapid improvement takes place when a suitable diet is given, as in the case described above.

TABES DORSALIS WITH GASTRIC MANIFESTATIONS

By A. H. Gordon, M.D.

Physician to the Montreal General Hospital

MRS. B., aged twenty-seven, hospital number 4227–19, was admitted on September 19th, 1919, complaining of pain in the stomach and vomiting.

She was a Scotch woman, twice married, the last time seven

months ago. She had two children by the first marriage, one alive, one dead at sixteen months of pneumonia and diarrhœa; one miscarriage nineteenth months ago. There has been no pregnancy since the second marriage. She was treated for gastric ulcer with vomiting of blood, in the Edinburgh Royal Infirmary, nine years ago. Six years ago she had an operation for appendicitis. Otherwise, her history was unimportant.

Present Illness. She was well until taking ship from England for Canada on September 5th. She began shortly to suffer from seasickness and kept her bed for five days. She had persistent vomiting and took only fluid nourishment. On September 10th a severe pain developed in the epigastrium which has continued ever since. The pain has radiated to the left costal border and around to the inter-scapular region and up along the sternum. It is aggravated by food, is not relieved by alkalies and only counter-irritation has given any relief. The bowels have moved fairly regularly. The vomitus has been bitter and of a dark brown colour and the patient has lost much weight.

Examination showed a poorly nourished woman of distressed appearance, vomiting at frequent intervals. Temperature, 99·2°; pulse, 100; blood pressure, 66–94. The tissues were doughy and dehydrated. Her thoracic organs were negative. The abdomen was retracted and showed marked tenderness in the epigastrium without resistance, and the abdominal respiratory movements were free. Pressure over the epigastrium caused marked nausea. The urinary bladder was full and the patient complained of retention. The fact that the routine examination showed the knee jerks to be absent was at first attributed to the state of semi-collapse in which the patient was admitted, but examination of the occular fundi showed a well-marked optic atrophy and the pupils reacted to accommodation but not to light. In addition, a very slight degree of inco-ordination of finger to finger was found, but heel to knee co-ordination was perfect. A lumbar puncture withdrew clear fluid under tension. It gave a positive Wassermann reaction and negative golbulin tests and showed a count of twelve cells to the c.mm. The blood Wassermann was negative. The day following the lumbar puncture the patient's pain and vomiting were much improved, and later completely disappeared.

SUMMARY. Positive signs of tabes dorsalis were found to explain symptoms apparently referable to activity of an old gastric ulcer. This patient was given salvarsan intravenously, followed by lumbar puncture, and referred to the out-patient department for further treatment.

Editorial

INFLUENZA AGAIN EPIDEMIC

DURING the past few weeks influenza has reappeared as an epidemic in many cities to the south of us, and although as yet it has not manifested the extreme virulence of the epidemic of 1918, yet both in New York and Chicago it has already exacted a heavy death toll.

Nothwithstanding the most careful investigations carried on by pathologists in Europe and all over this continent, there is as yet no certainty regarding its ætiology. The statement advanced some months ago that the cause of the last epidemic was a filtrable virus, has been shown to be erroneous, and opinions are still divided as to the rôle which the so-called influenza, or Pfeiffer's bacillus plays in its causation. This bacillus has been found in a large proportion of the cases which have come to autopsy, but in all it has been associated with other bacteria; most frequently with one or other type of pneumococci or streptococci. These undoubtedly add an increased virulence to the infection.

Gibson and Bowman, in a recent report of the Medical Research Committee, record the results of the following experiments: Streaks from an emulsion of Pfeiffer's bacillus were made about a centimetre apart on a blood agar plate, and at right angles to these similar streaks were made with a culture of streptococcus viridans. It was found that Pfeiffer's bacillus had grown much more luxuriantly where the streaks crossed one another than in the intervals.

The determination of the most effective measures to check and control the spread of infection has been given much thought and research. Sir George Newman, in his recent pamphlet on " Preventive Medicine", states that in his

opinion little can be done. Prevention by isolation of those infected is difficult owing to the short period of incubation allowing rapid multiplication of foci; the early stage of the disease at which infection may be communicated to others, and the varying severity of the disease. In many cases the attack is so slight as not to interfere greatly with the daily work of the patient, and in not a few there is difficulty in making an early diagnosis. Infection appears to depend on close personal contact and is probably a droplet infection. Its severity is related to lowered resistance in the recipient, and possibly also to the virulence of the infecting organism. The risk of infection is increased in ill-ventilated and over-crowded buildings. The control of such a disease is only practicable if the prompt and intelligent co-operation of every member of a community can be secured.

The appearance of influenza in epidemic form is generally associated witb the damp and chilling weather of winter and early spring. Nevertheless, epidemics have occurred during the summer season. In this connection we would call attention to the results obtained in the experimental work of Mudd and Grant (*Journal of Medical Research*, May, 1919) on the influence on the mucous membrane of the nose and throat of chilling of distant areas of the body surface. They found that the application of cold to various and even distant parts of the surface of the body causes a lowering of temperature with vaso-constriction and ischæmia in the mucous membrane of the palate, faucial tonsil and naso-pharynx. They claim that this chilling and ischæmia may disturb the equilibrium existing between the resisting powers of the host and the numerous and varied micro-organisms generally to be found on these tissues, and thus permit infection. Popular writers often decry the dread of draughts as a mere superstition. The fact that an ischæmia of these mucous membranes may take place as a reflex condition is important, and is especially liable to take place in those whose nervous centres have lost their tone by living in overheated rooms and indulging in

bathing in hot water without the tonic after-effect of a cold spray or cool douche.

The brilliant results recently obtained from prophylactic vaccine in a few other infections have raised our hopes that a similar method may eventually be found to check the development and spread of influenza. Up to the present our ignorance of the exact causation of the disease does not permit the preparation of any vaccine on a scientific basis. Many physicians, however, have reported favourable results from the early administration of a vaccine prepared from the various bacteria found associated in epidemic cases. Such a vaccine may have some prophylactic power and has been cautiously recommended by the Health Board of Great Britain. Experience proves, however, that stock vaccines have not the powers of fresh vaccines, and should any epidemic this spring made its appearance in Canada, we would urge the desirability of the Central Board of Health preparing a vaccine from the early cases in a district, and distributing this for the use of physicians in the locality.

Another method which may prove to be of value in preventing the development and spread of influenza is the inhalation of air charged with some disinfectant. During the prevalence of cerebro-spinal fever among the troops in camp in Great Britain an attempt was made to disinfect the air passages by causing not only contacts but the whole of the camp population to pass slowly through inhaling rooms where the air was kept charged by means of a steam atomizer with droplets of a solution of zinc sulphate. This measure failed to clear entirely the naso-pharynx in carriers of the infecting organism, but appeared to have an influence in checking the incidence of the disease. Working along the same lines, Dr. Alexander Gregor (*Brit. Med. Jour.*, Oct. 25th, 1919), reported on the freedom of the industrial employees in certain factories where the air was charged with a small amount either of nitrous oxide or sulphur dioxide gas, compared with the heavy incidence of the disease among workmen in neighbouring

factories in the air of which these gases were not present. Air charged to an extent easily tolerated with either of these gases is distinctly bactericidal and such air has the effect of rendering the secretions of the upper respiratory passages distinctly acid, and therefore unfavourable to the development of the majority of pathogenic bacteria. The Medical Research Committee of Great Britain is at present investigating the possibility of this method of prevention.

SURGERY AND "THE UNKNOWN QUANTITY"

A WISE physician made the statement "The first aim of treatment is to prevent death; the second is to relieve suffering."

Surgery in these days offers in so many instances a short route to the relief of suffering, and in so many instances the results are almost dramatic in their success, that one is tempted to employ operative treatment to a degree that would even change the emphasis of the aphorism quoted above and put the relief of suffering in a place before the prevention of death. Far be it from any of us to decry the employment of operative measures in every case in which they should be employed, but it seems not untimely to exhibit the reverse of the medal on which are stamped the triumphs of modern surgery.

The diminishing perils of infection and hæmorrhage, though not now to be expected as accompaniments of operation, cannot under the most favourable surroundings be completely ignored, while anæsthesia even in these latter days of skilled administration still takes its toll out of any considerable group of cases.

Post-operative pneumonia is the ghost at many a surgical banquet and pulmonary embolus may dramatically proclaim "*Il est mort guerit*"! but it is not so much to these, if not expected, at least expectable, perils, that we would point, as

to those unexpected and unforseen accidents, which can only be described as "The Unknown Quantity in Surgery".

It does not need a long memory to recall the occurrence of an abscess of the lung after enucleation of the tonsils, or the development of post-operative ileus after a simple gastro-enterostomy, while the painful perils of prostatectomy have not all passed into oblivion.

After all that has been said about surgical shock, its mystery is by no means cleared away, and whether or not it is in the realm of "Shock", so-called, that we must look for its causes, certain it is that there is an "Insult to the Ego" involved in surgical operation which it is impossible to foresee and almost impossible to forestall, though we etherize him never so skilfully. That this "Insult" may be a cause of death is undoubted. "The patient failed to rally from the operation" is not an unfamiliar statement.

But other things beside death may result from operation. What of the mental trauma in those of poor nervous fibre and in the physically old? The woman "who has never been well since she had her operation" and the man beyond his climacteric, full of energy until his operation, but whose engine stopped on dead centre and never got up steam again.

Then there is the question of convalescence; who ever got well as quickly as he or the surgeon thought he would do? Perhaps months after the surgeon has dismissed him cured, he is coming to his family physician for another bottle of tonic.

Thayer points out that complete convalescence from even so-called simple diseases, takes a much longer time than had been thought, and *a fortiori*, surgical trauma of any magnitude will require a much more extended period than the few weeks ordinarily regarded as ample.

The physician who lightly advises a tonsillectomy, a gastro-enterostomy, or an appendicectomy, or any other operation should have a reason for the faith that is in him, and that reason should not only be that nothing else has done

any good and operation should be tried, but should be founded upon a specific indication in the case under discussion, and should, along with the advantage to be gained, take account of the "unknown quantity" in any surgical operation, for "The first aim of treatment is to prevent death".

We are interested to learn that special courses for graduates in medicine, and extension lectures for the benefit of medical societies and groups of physicians throughout the Province of Ontario have been arranged by the University of Toronto, on a somewhat novel and more individual and elastic plan than has hitherto been attempted. A standing committee has been appointed, with advisory functions, to confer with any graduates interested, and individual teachers and departments have the power to arrange courses in advance with the necessary combination of ward and laboratory instruction, and library facilities for books recommended to meet the needs of the applicant. A minimum (registration) fee of $10.00 per month is imposed.

The Association

THE VANCOUVER MEETING, JUNE 22ND TO 25TH

We would like to remind our readers of the fifty-first annual meeting of the Association which takes place this year at Vancouver, June 22nd to 25th inclusive. As the distance is so great, it is difficult for the Local Committee to keep us fully informed of the progress of their arrangements, but letters from the President, Dr. R. E. McKechnie, recently received, indicate that the preparations are going forward actively, and that we may expect a splendid meeting. We do not know at the present time who are to give the main addresses, but such well-known names as Ochsner and Crile have been mentioned to us. In our next issue we will give full particulars.

An effort is being made to arrange for reduced rates on the railways, and we have been assured that there is every probability that such rates will be granted. Although the trip is a long one, we feel certain that our eastern members will be well repaid by attending this meeting.

HISTORY OF THE EVENTS WHICH LED TO THE PASSING OF THE BRITISH ANATOMY ACT, A.D. 1832

By D. Fraser Harris, M.D., (Glasgow), D.Sc.

Professor of Physiology, Dalhousie University

THE series of dreadful murders by the miscreants Burke and Hare in the West Port of Edinburgh in 1828 created so much alarm in the public mind that the government was compelled to introduce legislation to enable teachers of anatomy to obtain supplies for their dissecting rooms by a method other than that of indebtedness to the body snatchers. By an old Act of George II, the only legal supply of subjects was that of the bodies of murderers who had been sentenced to be hanged and dissected. This source was of course far too limited. The real source was the activities of the body snatchers or riflers of graves, "resurrectionists" as they were called, ruffians of the type of "Jerry Cruncher" in the "Tale of Two Cities". The anatomists detested these men and their methods, and cried out for legislation, but the functional mental inertia of the government prevented anything being done. The discovery that no less than sixteen persons had been suffocated by two blackguards, William Burke and William Hare, during eleven months, and that the bodies had been sold to the Edinburgh anatomist, Dr. Robert Knox, who "asked no questions", influenced the public so unfavourably that something had to be done.

The trial of Burke and his mistress Macdougall on Christmas Eve, 1828, at the High Court of Justiciary in Edinburgh created an unprecedented sensation. Fifty-five witnesses were called, the evidence of the Hares who had "turned" on their accomplices was allowed; and the two famous lawyers, afterwards Lord Cockburn and Lord Jeffrey, were engaged on the case. By Cockburn's eloquence, the woman Macdougall was acquitted.

The execution of Burke at eight in the morning of January 28th, 1829, which took place outside the old Tolbooth Prison

Abstract of Lecture.

("Heart of Midlothian") was witnessed by about 20,000 people, including some blind men! The medico-legal aspects of the trial were interesting. The evidence given by Dr. (afterwards Sir Robert Christison, professor of therapeutics, on the post-mortem appearances after asphyxia were of considerable value. The sentence to "be hanged and dissected" was faithfully carried out; the corpse was dissected in the college by Monro tertius, who exposed the brain; phrenologists, sculptors and metaphysicians went to view it. Sir Walter Scott was reported by the newspapers to have been there, but he states in one of his letters that he was not, neither did he go to see Burke's house.

Burke's skeleton was prepared as an osteological specimen, and is still in the anatomical museum at Edinburgh University; portions of his skin having been tanned, were made into tobacco pouches.

Burke gave a new verb to our language. "Burking" and to "burke" were used as early as 1832 by Lord Macaulay during the debate on the Anatomy Bill in the House of Commons. Lord Macaulay, who was strongly in favour of the bill, pointed out that it protected the poor from being burked; a furious speaker having tried to prove that the bill would encourage crime.

The new act provided that the bodies of persons dying in public institutions might, if unclaimed by their relatives, be dissected by students under properly licensed teachers of anatomy. The bodies after dissection were to be buried. The passage of the act virtually made an end of body snatching. The Edinburgh murders have their place in literature, for they are mentioned by Sir Walter Scott, J. G. Lockhart, De Quincy, George Eliot, Mrs. Gaskell, Archbishop Tait, Robert Louis Stevenson, Professor Saintsbury, and Professor John Wilson.

CANADIAN NATIONAL WAR MUSEUM

Progress Report upon Preparation of Material for Army Medical Department of Canadian War Museum

THE cataloguing and mounting of the pathological specimens of the war which are being carried out in the Preparation Department of the Medical Museum of McGill University, under the direction of Dr. Maude E. Abbott, have been making rapid progress. A conference of those specially informed upon this work was convened by order of the D.G.M.S. at the University Club, Mansfield Street, Montreal, on November 27th last, to discuss the modus operandi of completing it and of publishing a full record of it and of the other material of scientific interest in the army medical collection in the form of an illustrated descriptive catalogue. As a result of recommendations made by this conference, it is intended to complete the work along the following lines:

Duplicate Specimens of War Lesions are to be distributed throughout the universities in Canada, taking into consideration the number of specimens that have been supplied to the war collection by their representatives overseas.

Pathological Specimens, other than War Lesions, are to be distributed to those museums stating their wish to receive the same.

1. *The Main Collection,* which will comprise a complete series of all the war lesions of value that have been received, will constitute the pathological part of the Army Medical War Collection. It will remain the property of the Canadian Government, and will be housed in a central repository as soon as adequate provision for this has been made. By mutual arrangement between the Canadian Government and the curators of the museums of the various Canadian universities, series of specimens from the war collection may be shipped on loan from time to time for use in teaching at these schools, or for demonstration purposes before medical societies. Specimens so loaned will remain the property of the Canadian Government, and must be placed in a special section of the museum to which they are sent and prominently

labelled "Property of the C.A.M.C. Museum, loaned to this university."

2. *Plaster Casts of Extremity Lesions.* In so far as possible, duplicate sets of all type deformities represented in the main collection will be prepared and sent to the various universities of Canada, on request and on payment of the cost of manufacture.

3. *Exhibit of Plastic Surgery.* This collection consists of a very valuable series of wax models, drawings and photographs with full records pertaining thereto. Provision will be made to duplicate a small selected collection of the most interesting of these in order that this valuable work may be available for all the universities of Canada which desire it and which are willing to provide housing facilities.

4. *Photographic Reproduction of Material for the benefit of Universities and Allies.* As far as feasible, duplicates in the form of photographs and lantern slides of every museum specimen, which admits of this treatment, and of all casts, models, drawings and paintings, which are capable of reproduction, will be made available for each of the various universities of Canada, for Allied Medical Services and for the Royal College of Surgeons, London.

5. *Catalogue.* Descriptions of all the museum material, together with copies of photographs of selected specimens and with introductory articles to the various sections written by experts, will be published in book form and will constitute the official catalogue.

6. The whole collection will remain under the care and administration of the Director-General of Medical Services, to whom application should be made for loans of the various exhibits.

New Facts, New Suggestions

EXPERIMENTAL IRRIGATION OF THE SUBARACHNOID SPACE.

L. Weed and P. Wegeforth (*Jour. Pharm. Expt. Ther.*, 1919, 13, 317, 335) discuss the experimental irrigation of the subarachnoid space. It has doubtless occurred to many that in cases of cerebral and spinal meningeal infection it might be possible to do good by an antiseptic irrigation of the subarachnoid space, and the measure has, indeed, been advocated by Franca and Wolff. The authors of the communications above mentioned have taken up this problem from an experimental standpoint.

The subarachnoid spaces of cats were irrigated by placing needles in the region of the vertex, occiput, and lumbar regions, so that either the cerebral arachnoid spaces or the spinal spaces, or both, could be continuously washed by a physiological saline solution. The thoroughness of the washing was controlled by adding carbon or Prussian blue particles to the solution, and noting their even deposition in the spaces. After this type of irrigation, normal animals remained well. In the absence of calcium salts in the irrigating fluid the convulsive symptoms of tetany and epilepsy developed. Survival was lengthened, if the meningeal spaces were infected by *B. lactis ærogenes*, by single irrigation with the saline solution (modified Ringer) prolonged and in some cases doubled.

The greater toxicity of ordinary antiseptics when applied to the nervous system as compared with other tissues, is shown by the results of their experimentation, as well as the usefulness in prolonging the period of survival in cases of otherwise fatal meningeal infection. Profound toxic effects are produced by chloramine, potassium binoidide, flavine, carbolic acid, and silver nitrate when they are injected into the subarachnoid spaces. Lysol and potassium permanganate produce no serious symptoms, yet there is accomplished no beneficial effect in cases of meningitis. Pathological changes in the meninges were found at autopsy when even small amounts of chloramine and flavine were injected into the subarachnoid space, and the animals remained normal. These consisted of a more or less complete obliteration of the subdural and subarachnoid spaces with serofibrinous exudate.

METHYLENE BLUE IN THE DIAGNOSIS OF ACUTE PERFORATING GASTRIC AND DUODENAL ULCERS.

H. L. BAKER writes regarding the value of methlyene blue in the diagnosis of acute perforating gastric and duodenal ulcers. Every surgeon can look back in his experience upon cases in which in the presence of acute abdominal symptoms he has been forced to open the abdomen without being able to make an exact diagnosis between such conditions as perforated gastric, or duodenal ulcer, an acute gall bladder lesion, pancreatitis, high obstruction, mesenteric embolism and appendicitis. Not infrequently the abdomen has first been opened below the umbilicus, and the operator has been obliged later to make a second incision in the epigastrium for further exploration, often finding, in the end, a perforated ulcer. Even under such circumstances it is sometimes difficult to find the source of the acute peritoneal symptoms. Baker's suggestion is to administer by mouth, three grains of methylene blue dissolved in an ounce of water, half an hour before operation. If a perforated ulcer is present, the diagnosis can be positively made immediately upon opening the abdomen by finding the leaked-out greenish-blue fluid, the source of which can easily be traced. Even in cases where a plastic fibrinous peritonitis, without free fluid in the peritoneal cavity, is present, the blue staining of the tissues is particularly helpful in disclosing the site of the perforation. The author gives reports of some ten cases in which this method proved valuable. He points out also that the ease and rapidity with which the diagnosis and site of perforation can be determined possess an added value in the fact that the shock of handling viscera is reduced to a minimum.

OPERATIVE APPROACH IN OPERATION OF THE SPLEEN.

CHEVRIER (*Bulletins et Memoires de la Société de Chirurgie de Paris*, 1919, Nov. 11, Tome xlv.) discusses the best method of approach in operations of the spleen. The incision in operations on the spleen is of considerable importance. The ordinary vertical incision at the edge of the left rectus is apt to give insufficient room and, moreover, cuts several of the dorsal nerves, and leaves a paralysis of the left rectus. The horizontal incision, through the flank, also gives insufficient room. Chevrier recommends, to avoid these disadvantages, an incision running from a little above the

curve of the floating ribs at about the free end of the tenth costal cartilage, obliquely downwards through the left rectus as far as the midline, just below the umbilicus. This incision is approximately parallel to the vessels and nerves and to the fibres of the internal oblique. It gives a large access to the splenic loge, particularly if, when necessary, it is enlarged upwards through skin and superficial muscles, without resection of the eleventh rib, and also with the use of what the author calls dorsal deflexion, meaning thereby the projection of the left lower ribs by placing the patient somewhat on the right side with a sand pillow underneath the lower right thorax.

The advantages of this incision are particularly seen in removal of carcinomata of the splenic flexure, or of the enlarged spleen.

ON THE THERAPEUTIC VALUE OF ALCOHOL.

REGARDING this much discussed therapeutic agent, Landis (*Progressive Medicine*, Dec., 1919) writes that he considers that prohibition has been chiefly brought about by the factors: (1) The growing conviction of the employers of labour that the use of alcohol made for inefficiency and the loss of many working days; (2) the impetus given to the movement by the adoption of prohibition as a war-time measure; (3) the moral cowardice of many politicians who feared to come out against a movement which had the support of many of their constituents. Landis believes that this same general attitude has been taken by many of the medical profession in their repudiation of alcohol as an efficient therapeutic agent. The profession has also undoubtedly allowed the so-called moral elements to largely govern its decision. It has been well said that alcohol has about every action that its friends claim for it, and about every fault that its enemies claim for it, depending, however, upon the person who uses it and how it is used. Hare has summarized its position as follows: "Alcohol is a powerful drug, and therefore if used carefully capable of doing good. It has been and is used in the treatment of disease by thousands of physicians. Care should be exercised by those who act as representatives of their colleagues in the profession in dogmatically condemning what many of their confrères believe to be valuable." Shattuck in a recent address dealing with the history of medicine during his own lifetime discusses the value of alcohol in pneumonia, and suggests that the pendulum may have swung too far away from alcohol in

grave cases. He asks if fifty years hence alcohol will be regarded as always, everywhere, and in all circumstances, the unmitigated poison that many at present would have us believe it to be. Its undoubted abuse in the past does not affect the belief of many that in some instances it is life saving. The best results, however, are obtained only under skilled supervision which forbids the repetition of the dose while its toxic effects are manifested by undue flushing of the face, or by a heavy odour of the breath.

Retrospect

THORACOPLASTY FOR CHRONIC CHEST CAVITIES

By Fraser B. Gurd, B.A., M.D., F.A.C.S.

Montreal General Hospital

Moschcowitz: *Surgery, Gynæcology and Obstetrics*, 1919, vol. xxviii, p. 337.

Beck: *Surgery, Gynæcology and Obstetrics*, 1919, vol. xxviii, p. 379.

Lilienthal: *Annals of Surgery*, 1919, vol. lxx, p. 43.

Roux-Berger: *Lyon Chirurg.*, 1919, vol. xv, p. 330. *Presse Med.*, Paris, 1919, vol. xxvii, p. 86.

Tuffier: *Presse Med.*, Paris, 1918, vol. xxvi, p. 497.

Delorme: *Bulletin Academie de Medecin*, Paris, 1918, vol. lxxx, p. 401.

As a direct result of the large number of war wounds of the chest and the tremendous incidence of empyema as a complication of the recent world-wide epidemic of influenza, the literature dealing with the treatment of both acute suppurative inflammations of the chest cavity and the consequent rigid walled cavities has become vast.

It is outside the province of this retrospect to consider the numerous techniques, some old, some new, which have been described for the treatment of thoracic empyema during the acute stage.

The impressions gained from a survey of the literature dealing

with the treatment of the chronic cavities is that (1) the operative methods which have for their aim more extensive intrathoracic interference are gaining favour, whereas the collapsing type of operation, as typified by Estlander, is being more and more reserved for those cases which are considered well nigh hopeless. (2) That major operative interference is now being undertaken earlier in the course of the disease than was considered proper heretofore.

The most noteworthy statement made by the various surgeons who have employed operation of the decortication type is that which refers to the comparative safety of the procedure.

Delorme gives as his opinion that spontaneous and permanent closure of chest sinuses following thoracic wounds is not to be expected if they have existed for more than five months. All such cases must be operated upon. He reports forty-nine cases of pulmonary decortication by various war surgeons without a death due to the operation itself. As a rule, healing occurred in from six to eight weeks after operation. He lays stress upon the absence of shock, and states that the indication is that, so soon as radiography and the clinical examination shows that the lung is powerless to expand, its enveloping shell should be removed.

Berger gives his results in the treatment of a series of chronic chest cavities without a death. Roux-Berger's operation is apparently more radical than decortication as usually carried out. After a large exploratory thoractomy in which pockets are opened, the dressings are changed daily, and by the sixth day the second operation of total pleurectomy followed by pneumopexy is performed. He advises that the decortication be carried out before the lung has lost its elasticity. Liberation of the lung should be complete. In his earlier cases he removed the membrane from the external surface only. This he found did not suffice. The whole lung should be freed so that the exploring hand may survey the whole organ. He makes his incision through the fourth or fifth costal space from the sternum to the external edge of the scapula, and uses a Tuffier rib spreader. Following mobilization of the lung, he prefers to perform pneumopexy. The more completely the lung is fixed in its proper position, the better are his results. In the series of four patients reported in his "Lyon" article the sinuses were completely cured in three, in the fourth a small fistula persisted.

Tuffier reports forty-seven cases of empyema treated by means of discontinuous irrigation followed by the removal of the covering of the lung at operation and suture. No mortality accompanied the operation. A satisfactory result was achieved in all cases.

The reviewer has had an opportunity of watching Lilienthal perform his operation, and has also seen several healed post-operative cases. He has also performed the operation in a series of cases, and has been impressed with the comparative simplicity of the technique and in general with the results achieved. In the article reviewed, Lilienthal describes his operation in detail.

He reports twenty-three cases with one operative death, and three unhealed at the time of making his report.

In performing this operation, the patient is placed upon his sound side, lying on a pillow, so that the diseased side is bowed. Incision is made in the sixth or seventh interspace and by preference Lilienthal states should not enter the old drainage wound. Incision begins behind the costal angle and extends almost or quite to the cartilage. Having opened the cavity in the centre of the incision, it is enlarged and a rib spreader introduced. As in old empyema cases, the chest wall is firmly fixed by fibrous tissue, it is necessary to divide from one to three ribs upwards or sometimes downwards at the posterior angle of the wound in order to expose the cavity, the skin incision being similarly extended. As a rule, this permits a separation of six inches or more.

In dividing the ribs, it is well to use a Liston's forceps, cutting half through the periosteum and soft tissue at one stroke. The blades of the forceps are closed upon the edges of the ribs, the vessels rarely bleed; if necessary, they may be caught.

Lilienthal states that when ribs have been cut at the posterior angle of the wound, it has been his custom before closing the thorax to cut away about one-half or three-quarters of an inch of the anterior portion of each rib so as to prevent post-operative pain and trauma by the grinding together of the cut ends.

When cleaning out the cavity, which is found to be smooth, glistening, and of a greyish colour, an incision is made with the scalpel into the visceral portion of the membrane from the apex to the base of the cavity. An attempt is made to find the zone of cleavage between the membrane and the pulmonary tissue, dissecting bluntly with the finger or instruments.

An increase in intrapulmonary pressure is obtained by closing the free nostril (the patient being under intrapharyngeal anæsthesia) and holding the lips together. Fine bubbling on the surface of the lung is no cause for alarm, but a hissing sound means that a bronchial branch has been opened, an accident that cannot in all cases be avoided. "These fine bronchial openings may lengthen the time

of healing, but in my experience have always closed without further operation."

In the earlier cases, decortication may be carried out, but in the older cases fibrous processes extend in the pulmonary tissue, so that it is impossible to peel away the membrane. Lilienthal advises against any attempt to peel away the lung from the chest wall and advises great caution in working over the diaphragm. When it is evident that no further extension can be secured, the tract of the original thoracotomy wound is well curetted and a short tube is drawn from within outward by dressing forceps. The large wound is closed with sutures in three layers.

Breathing exercises must be carried out as soon as possible after operation. Shock, he states, is rare. Repair of the muscles injured is usually adequate so that the function of the chest and arm is but a little impaired. Healing usually takes place in four weeks. Lilienthal recommends that patients with cavities and discharging sinuses which persist for more than two months after drainage, and which do not respond to the Carrell-Dakin treatment, should be examined with the vertical fluoroscope. Those with rigid cavities should be operated upon according to his technique.

Moschcowitz' article deals with the whole subject of the treatment of empyema in the author's characteristically complete and satisfactory manner. His contribution should be read *in extenso* by all those who are interested in the subject of suppuration within the chest cavity. Moschcowitz recommends, for bronchial fistulæ which do not heal spontaneously, adequate mobilization of the lung, usually obtained by a Schede operation, followed by excision of entire fistulous tract, with or without subsequent suture.

In the article referred to, Beck describes his success in two cases of large chronic chest cavities treated by the advancement of pedunculated flap into the cavity from the chest wall for the purpose of epitheliating the lining of the cavity. In apical cavities more particularly this technique would appear to have a very definite usefulness. This article also describes in detail the proper enployment of bismuth paste in the treatment of chronic cavities.

PERIPHERAL NERVE INJURIES

By G. S. Mundie

Assistant Demonstrator in Clinical Medicine, McGill University

Cutaneous Sensibility in Cases of Peripheral Nerve Injury: Epicritic and Protopathic Hypothesis of Head Untenable. Stanley Cobb, *Archives of Neurology and Psychiatry*, November, 1919.

Supplementary Muscle Movements in Peripheral Nerve Lesions. L. J. Pollock, *Archives of Neurology and Psychiatry*, November, 1919.

Misleading Motor Symptoms in the Diagnosis of Nerve Wounds. A. J. Woods, *Archives of Neurology and Psychiatry*, November, 9119.

Problems in the Diagnosis and Treatment of Injuries to Peripheral Nerves. Elsberg and Woods, *Archives of Neurology and Psychiatry*, December, 1919.

Overlap of So-Called Protopathic Sensibility as Seen in Peripheral Nerve Lesions. L. J. Pollock, *Archives of Neurology and Psychiatry*, December, 1919.

THE experimental investigation of cutaneous sensation began with the work of Head and his collaborators, 1905–1908. Head, by having the sensory branch of his own radial nerve divided and by carefully following the return of sensation for nearly two years, evolved the theory of "epicritic" and "protopathic" sensibility.

"Epicritic" includes: (*a*) Recognition of light touch, as with cotton wool; (*b*) thermal sensations between 25 and 40° C.; (*c*) localization of cutaneous impressions; (*d*) discrimination of two points (compass test).

"Protopathic" includes: (*a*) Cutaneous pain of all kinds; (*b*) heat above 45°C.; (*c*) cold below 20°C.; (*d*) mechanical stimuli to hairs.

This theory was accepted, found its way into text-books, although the work of other investigators and the recent clinical work on peripheral nerve lesions have pointed out the fallacy of it.

Trotter and Davies, in 1909 and 1913, and Boring in 1915,

found that all forms of sensibility tend to reappear together after nerve division and suture, and that all returning sensation is at first hypoesthetic, gradually approaching normal sensitivity. None of these investigators found the dissociation of areas of epicritic and protopathic sensibility.

Tinel, in his book on nerve wounds, says that we may generally dispense with all minute examinations; exploration with a pin alone supplies all necessary information.

Cobb, in his article, reviews the results of five hundred and forty cases of nerve injury, of which sixty-six were operated on in the United States Army General Hospital, No. 11. His conclusions are that: (1) the epicritic and protopathic hypothesis of Head and his collaborators should be abandoned; (2) dissociations of sensation due to peripheral nerve lesions arise from comparing stimuli not only qualitatively different but quantitatively unequivalent; (3) clinical examinations should be simple and examination for one mode of sensation suffices for diagnosis.

The preservation of certain movements, the loss of which is supposed to follow particular nerve lesions, has been observed for many years. Pollock and Woods, in their articles, attempt to explain the factors which cause these movements. Among these factors, they say, may be included the anastomotic supply of muscles from adjacent nerves, movements produced by muscles other than primary movers in this action, movements occurring as the result of mechanical factors producing a change of direction of leverage by shortening and lengthening of tendons and muscles passing over several joints, and slight movements resulting from the recoil of elastic tissue following a movement in a direction opposite to the one desired.

Elsberg and Woods deal chiefly with the general conditions on which successful treatment of peripheral nerve injuries must depend. They discuss the significance of some symptoms and signs of nerve injury, of some aspects of the finer anatomic structure of the peripheral nerves, and of the anatomic basis and guiding principles for the technic of nerve suture and nerve grafting.

They claim that the value of the "Tinel" sign—the tingling which is observed when the skin is tapped along the course of a peripheral nerve—is doubtful from a practical diagnostic standpoint. They point out that the skin area over which a sensory nerve is distributed varies considerably in size in different individuals. The importance of symptoms and changes in nerves due to ischæmia when blood vessels are blocked off by the pressure of scar tissue is

emphasized and it is a point which has received very little attention by neurologists and surgeons. The fourth point they point out, is that, although a nerve may appear quite normal to the eye, there may be an intranerural blocking of the axons.

In regard to operative interference in peripheral nerve lesions, great importance is laid on the handling of the nerve and the necessity of not doing too much dissection along the course of the nerve in order not to injure the blood supply to the nerve. They divide peripheral nerves into classes: (1) those in which the number of funiculi is small but the funiculi are of large size—the type with large funiculi—and (2) those in which the number of funiculi is large, but the funiculi are of small size—the type with the small funiculi. Regeneration is more rapid and more complete in the nerves with large funiculi than in those with numerous small funiculi. Severe neuralgias and so-called causalgia occur in the nerves with numerous small funiculi, and they suggest that in inflammatory processes in the perineurium, an imitation of sensory fibres is much more apt to occur in a nerve with small funiculi than in one with large ones.

The results of Pollock's investigation criticise only that part of the theory of Head and his co-workers dealing with the temporal dissociation of epicritic and protopathic sensibility. He finds that the early return of sense of prick pain before the return of sense of touch is not due to temporal dissociation of epicritic and protopathic sensibilities, but is due to the assumption of function by adjacent overlapping nerves.

The work of these four authors clearly show that the theory of Head can no longer be accepted; that for ordinary clinical diagnosis in peripheral nerve lesions no fine instruments are needed to arrive at a correct diagnosis; that in operative interference for nerve wounds we have yet considerable to learn before our technique is perfect.

Obituary

PROFESSOR E. MACKAY

Dalhousie University (1864–1920)

By the death of Professor Ebenezer MacKay, on January 6th, 1920, Dalhousie University has lost a faithful servant, the students an able teacher, and the Province of Nova Scotia a wise educationalist. The late Dr. MacKay had been professor of chemistry since 1896. He was acutely ill with pneumonia only a little more than a week, but he had not felt well since the summer, when he took no holiday but worked very hard on those committees through whose activities the celebration of the Centenary of the University, September, 1919, was so great a success.

Though born in Pictou County, the late Professor MacKay was of Highland Scottish stock, his father having come to Canada from Rogart in Sutherlandshire. Passing from Pictou Academy to Dalhousie University, Mackay graduated B.A. in 1886 with first class honours. After study at Harvard and at Princeton, he graduated Ph.D. in 1896 at Johns Hopkins University. In the same year he was appointed to the newly created Munro Chair of Chemistry in the Faculty of Arts and Science at Dalhousie. Long a prominent member of the North British Society, he was at the time of his death its senior Vice-President.

Professor Henry M. MacKay, of McGill, is a brother. The funeral ceremonies, both in Halifax and at the interment at New Glasgow, were most impressive. Members of the Senate attended in academic dress and followed the hearse along with representatives from a number of public bodies to St. Matthew's Church. The cortege approached the church through the open ranks of 600 students standing bareheaded.

Professor MacKay will be greatly missed; his colleagues on the Senate will miss him where his carefully considered counsel was always received with respect; the students will miss the clear exposition of his subject in which he had trained many well known specialists; in the city of Halifax his death causes a blank not easy to fill. Professor MacKay, though eminently the student, was never absent when any project for the public weal needed assistance and encouragement.

SIR JAMES GRANT

In the death of Sir James Grant on February 6th at the age of eighty-nine years, a well-known figure of historic interest passes from our midst. He was educated at Queen's and McGill Universities and had practised medicine in Ottawa ever since 1854. During this time he held various representative offices, including that of official adviser to several Governors-General. He was president of the Ontario Council in 1868, of the Canadian Medical Association at a slightly later date, and of the Royal Society in 1901; honorary vice-president of the International Medical Congress at its meeting in Washington in 1887, and a Fellow of the Royal College of Physicians and Surgeons of Edinburgh and London. He was the first Canadian physician to receive a K.C.M.G., awarded him at the time of the Queen's Jubilee. For some years he took an active part in Parliamentary affairs on the Conservative side, and was the last survivor but one of the first Dominion Parliament of 1867.

Lady Grant is the daughter of the late Edward Malloch of Carleton, Ontario. She and seven children survive him.

Captain J. Freer Richardson, M.D., officer commanding the 49th Indian General Hospital in Afghanistan, died on November 27th. He was thirty-five years of age. He was born in Winnipeg, and was a student of Manitoba University and later a graduate of London University, England. Captain Richardson had been engaged in medical work in the East for a number of years and it was due to his professional ability, and his knowledge of the language and people, that he was appointed to command Indian hospitals in Mesopotamia and Afghanistan. He was a grandson of the late Dr. James Richardson, of Toronto.

Edward William Spragge, M.D., died at his home in Toronto on December 31st. He was seventy-six years of age, a son of the late Chief Justice Spragge.

Dr. Laughlin MacPherson, of Antigonish, died at St. Martha's hospital, of pneumonia, on January 1st.

The death occurred on January 5th, at the Winnipeg General Hospital, of Dr. Grant, of Roblin, Manitoba.

Dr. Clinton Tremaine Purdy died on January 12th, at his home in Moncton, New Brunswick. He was sixty years of age. He was born at Amherst and took his medical course at New York University. Dr. Purdy was a former mayor of Moncton and was universally respected.

The death at sea is announced of Captain A. MacDonald Ford, B.A., M.D., F.R.C.S., L.R.C.P. (London and Edinburgh), who was returning to Halifax. Captain Ford had been on military service with the Canadian Army Medical Corps since the outset of the war. He was a son of Mr. Joseph Ford, senior, Portneuf, Quebec.

The death of Robert Joseph Dwyer, M.D., M.R.C.P., London, occurred on January 26th, at his home in Toronto.

We regret to learn of the death, in the railway accident at Sudbury, Ontario, of Dr. W. J. Chambers, of Calgary, Alberta, whose paper appears in this number of the Journal.

As the Journal goes to press, we learn with regret of the death, from pneumonia, of Dr. Herbert J. Hamilton, of Toronto, and of the sudden death of Dr. William S. Morrow, of Montreal.

Miscellany

News

NOVA SCOTIA

John Stewart, M.B., C.M. (Edin.), LL.D. (Edin.), LL.D. (Dal.), professor of surgery in Dalhousie University, has been appointed Dean of the Faculty of Medicine in that university.

A public meeting was recently held in Halifax for the purpose of considering the establishment of a psychiatric clinic. Dr. C. M. Hincks gave a very able address. He expressed the willingness of the Canadian National Committee of Mental Hygiene to undertake a survey of Nova Scotia.

ONTARIO

DR. J. C. CONNELL, Dean of the Medical Faculty of Queen's University, and President of the Medical Council of Canada, has been invited by the government of the United States to join a medical commission from Great Britain and France, whose object is to further inter-allied reciprocity in registration. The commission will meet in Washington in April and will afterwards attend the annual meeting of the American Medical Association in New Orleans.

ONTARIO doctors have been requested by the provincial health officer to make immediate notification of any cases of lethargic encephalitis. Several cases have already appeared in the province.

THE HONOURABLE WALTER ROLLO, Minister of Labour and Health, has taken control of the provincial department of health. The transfer of the department was made in order to relieve the Provincial Secretary of some of his excessive duties.

DR. J. K. MILNE DICKIE, F.R.S.C., Edinburgh, has opened an office at 47 Grosvenor Street, Toronto. He was formerly Ear, Nose and Throat surgeon to the Leith Hospital, Edinburgh, where he received most of his training working under Dr. Loganduour and Dr. J. S. Fraser, was for some years on the teaching staff of the University of Edinburgh, and for the past four years on active service at the front.

THE report on the care and control of the mentally defective and feeble minded presented to the provincial secretary by the Honourable Mr. Justice Hodgins is regarded as one of the most important ever handed to the government on this subject. Important reforms are suggested. The establishment of suitable mental clinics and prompt dealing with degenerate settlements are measures strongly urged.

FOLLOWING the recent announcement of the federal grant for combatting venereal disease, the provinces have agreed to take the following action: Approved clinics shall be established at various centres with specialist physicians in charge of treatment, and assistants to carry on the work. Treatment shall be given free to the

patients, and hospital beds will be provided for indoor cases. Diagnostic laboratories, or parts of other laboratories, must be set aside for venereal disease work at different centres to be named by the provinces. Efficient treatment must be given to inmates in jails. A specialist on venereal disease diagnosis, treatment and propaganda will be placed in charge of the work just outlined.

QUEBEC

ARRANGEMENTS have been made for the first meeting in Canada of the American College of Surgeons, which will occur in Montreal early in October, 1920. It is probable that about one thousand, five hundred of the leading surgeons of Canada, the United States, Great Britain and France will be present. The session will last about a week and will be presided over by Dr. Armstrong, the president of the Association.

A FACULTY of dentistry is being established at McGill Universty; hitherto this has been a department of the faculty of medicine, which undertook the teaching and the clinical work was done at the Montreal General Hospital. The new faculty will begin work with a hundred students.

THE civic health officer of Quebec city recently stated that out of six hundred and sixty-five children, inmates of a Levis institution, 90 per cent. were infected with tuberculosis. Dr. Paquin admitted the gravity of the situation in all parts of the province now threatening the youth of the country, and said that in the near future a meeting of the league fighting the disease would take place in this city to suggest preventive measures.

MANITOBA

DR. J. A. AMYOT was recently commissioned by the Department of Health, Ottawa, to proceed to Winnipeg to investigate the epidemic of encephalitis lethargica. Sixty-five cases had been reported and twenty deaths had occurred in the province from this malady between November 11th, when it first appeared, and January 1st.

A NEW hospital is to be raised at Brandon at a cost of $300,000.

THE regular monthly meeting of the Winnipeg Medical Society was held on December, 1919. A paper by Dr. Halpenny on renal tuberculosis was followed by an animated discussion in which physicians and surgeons took an equal share. Dr. D. F. McIntyre presented a clinical case of ectopia vesicæ, and Dr. W. Creighton one on renal calculus. Dr. Mathers read the history of a very interesting case of epilepsy in which the psychic disturbances were more marked than the physical ones.

THE results of the Manitoba University mid-year examinations show that seventy-four students passed in senior matriculation of medicine, seventy-six first year medicine; twenty-six first year pharmacy; seven, second year pharmacy.

ALBERTA

THE minister of health recently called attention to the health policy of Alberta since the province was created in 1909. During the last session of the legislature a distinct department of public health was created which was given jurisdiction over ten important Acts, namely: The Public Health, Public Health Nurses, Registered Nurses, Municipal Hospitals, Venereal Diseases, Medical Profession, Alberta Pharmaceutical, Dental Association, Marriage Ordinance, and Vital Statistics Act.

The number of hospitals now being supervised and receiving aid from the province is forty-nine. Hospitals now owned and controlled mupicipally are in operation in the following towns: Mannville, Vermilion, Islay, Cardston, Drumheller, and Bassano. For the coming year it is expected that hospitals will be established in ten new localities.

IN the cities and towns of Alberta medical inspection of schools had been provided by the Public Health Act. Owing to scarcity of physicians, particularly in outlying parts, twelve public health nurses are now engaged in inspecting school children. These nurses were given a special course to prepare them for their office of inspection at the Provincial University. Under the Act, their work is entirely suggestive.

A SANITARIUM is being constructed at Keith for the treatment of tuberculosis cases. The initial capacity will be one hundred and seventy-five beds. The full capacity of the institution when all units are complete will be three hundred and fifty.

FIVE sanitary inspectors are appointed to continuous duty throughout the province.

SASKATCHEWAN

THE work of the Saskatchewan Red Cross has increased so much that the executive decided to engage a Commissioner who must be a medical man with an overseas' reputation. The bank balance on New Year's Day of the Saskatchewan Red Cross was $72,446. The society has, in addition, $150,000 in Victory Bonds.

THE Anti-Tuberculosis League is opening a campaign to induce the people of the province to submit to a provincial tax of one-fifth of a mill, for the purpose of stamping out tuberculosis.

PROVISION for the education of feeble-minded children in Saskatchewan, to be made in connection with the new mental hospital now in course of erection at Weyburn, was the object of a delegation of trustees from the Regina Public School Board. to Premier Martin.

FOUR Union Hospital districts have been established under the provisions of Part II of the Union Hospital Act. The orders-in-council have named the towns of Battleford, Unity, Strasbourg and Wynyard and hospital boards are already appointed by the municipalities concerned. Ratepayers in the areas tributary to the above-mentioned towns will probably vote on the scheme in March or April.

THE public health commissioner for Saskatchewan has been advised by the Health Department of Ottawa, against the purchase of shaving brushes manufactured in Japan bearing certain identification marks which were quoted, which have been found infected with anthrax. Cases of this disease in London, England, have been traced to Japanese shaving brushes and the information cabled to Ottawa from London by the High Commissioner of Canada.

BRITISH COLUMBIA

The government has decided to spend $150,000 on institutions. Of this amount, $85,000 is to be spent on cottages, on a 300-acre farm, for the care of the feeble-minded.

THE appointment of Dr. E. C. Arthur to the position of Travelling Medical Health Officer of the province meets with general approval, and makes an important development in the work of the Provincial Board now possible.

A NEW annex to the Provincial Royal Jubilee Hospital is in prospect to accommodate venereal disease cases. The cost of maintenance will be borne by the provincial government. Establishment of the hospital is compulsory under the Provincial Venereal Diseases Act, and other municipalities within the province are to conform to the same rule. Under the terms of the act, registration by doctors of cases must be made and treatment at the special hospital is compulsory.

Book Reviews

SIR WILLIAM TURNER, K.C.B., F.R.S., professor of anatomy and principal and vice-chancellor of the University of Edinburgh. A CHAPTER IN MEDICAL HISTORY. By A. LOGAN TURNER, M.D. Price 18/- net. Publishers: William Blackwood & Sons, Edinburgh and London, 1919..

DR. LOGAN TURNER, of Edinburgh, has made the occasion of writing the life of his distinguished father, the late Principal Sir William Turner, an opportunity to contribute a valuable chapter to the history of Scottish medicine. The career of Sir William Turner from junior assistant in the old anatomical department at Edinburgh to the Principal's chair in that great university, is told by his son in a pleasant, vivid and concise narrative.

In this volume is related not only what Turner the Englishman did for the venerable seat of learning at Edinburgh, which no Scotsman born could have loved better, but also what he achieved in the furtherance of medical education in Great Britain and for the advancement of anatomy, anthropology and ethnology everywhere. All Edinburgh men know that the renaissance of the Faculty of Medicine at Edinburgh in the middle of last century, the outward and visible sign of which is the splendid mass of buildings in Tevoit Place, was the outcome of Turner's wisely directed energy. To say that Turner was versatile is to give but a feeble idea of his powerful personality. His son tells us how he became a great teacher and the trainer of teachers of anatomy, a splendid organizer and man of affairs, an indefatigable researcher in four or five sciences, the author of two hundred and seventy-seven papers, the president of the Royal Society, the president of the Royal Society of Edinburgh, and finally the president of the British Association—the "Blue Ribbon" of British Science.